NOLOGY DEPT.

Gas Journal

Vol. 268. 103rd Year. LONDON, OCTOBER 24, 1951. No. 4612. Price 1/3
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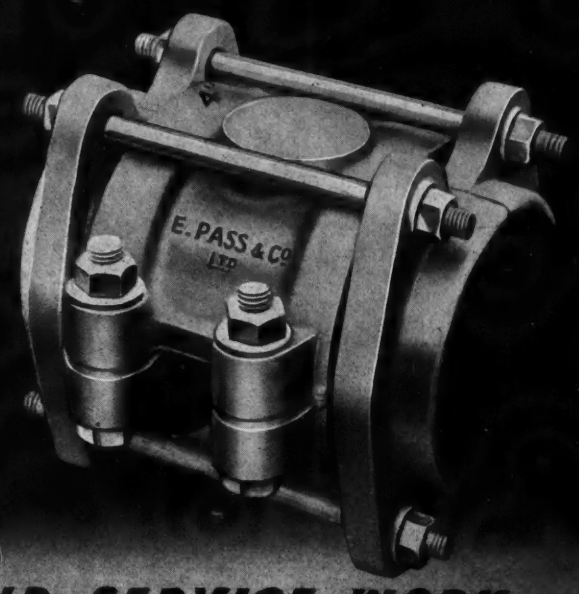

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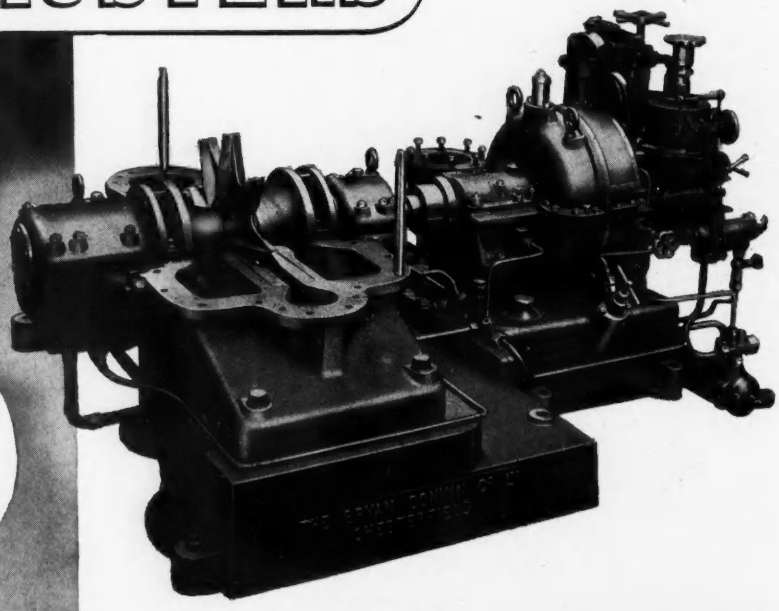

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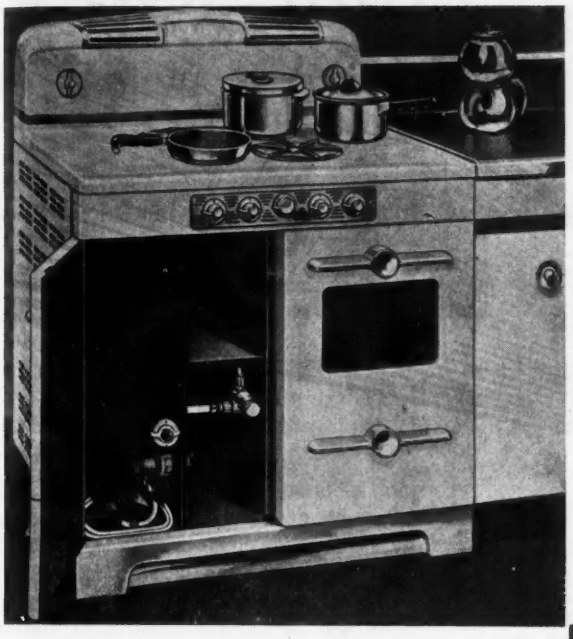

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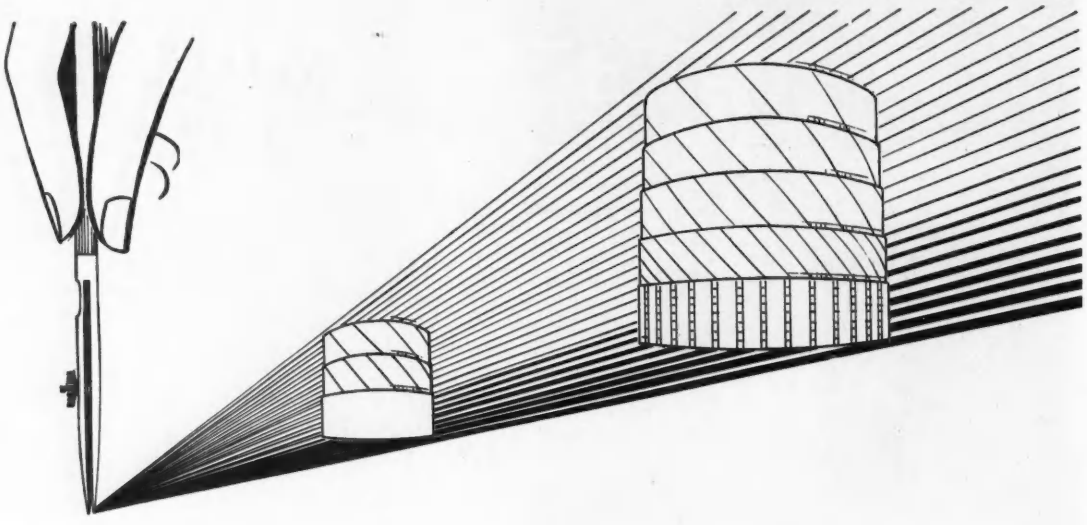

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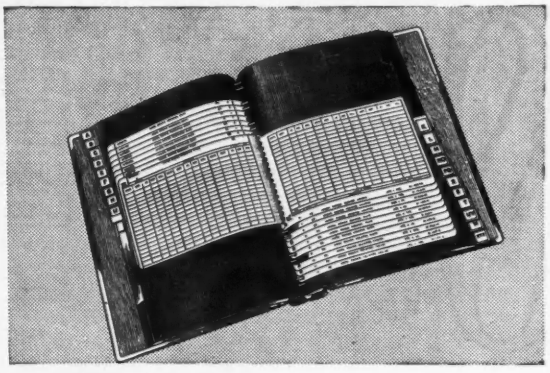
Below we list a few of the records which will interest readers of the Gas Journal. If you will just jot "Gas Records" on your letterheading we shall be happy to send you full details of the new Shannoleaf method. Please indicate which records interest you most.



Appliance Maintenance Record	SF 6768
Appliance Order Record	SF 1670
Case and Container Records	LS 6401/2
Coke Delivery and Allocation Rec.	SF 8695/6
Consumer's Rec. (Prepayment)	SF 7414
Fuel Consumer's Ledger	SF 10443
Hire Purchase	SF 8269
Invoice Analysis	SF 7206
Maintenance Ledger	SF 10444
Materials Costs Analysis	SF 9694
Order Records	SF 10282 & A.061
Personnel	SF 5667
Plant Maintenance Costs	SF 9749
Plant Maintenance	SF 9288
Project History	SF 8188/8252/9223
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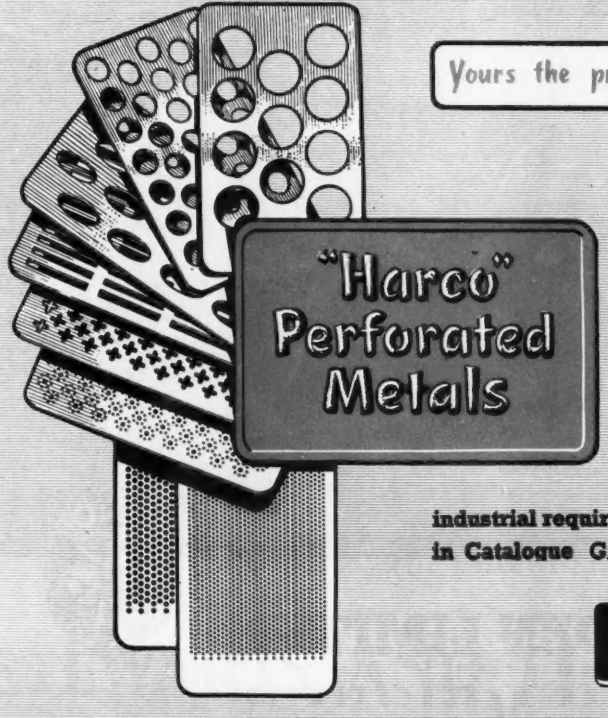

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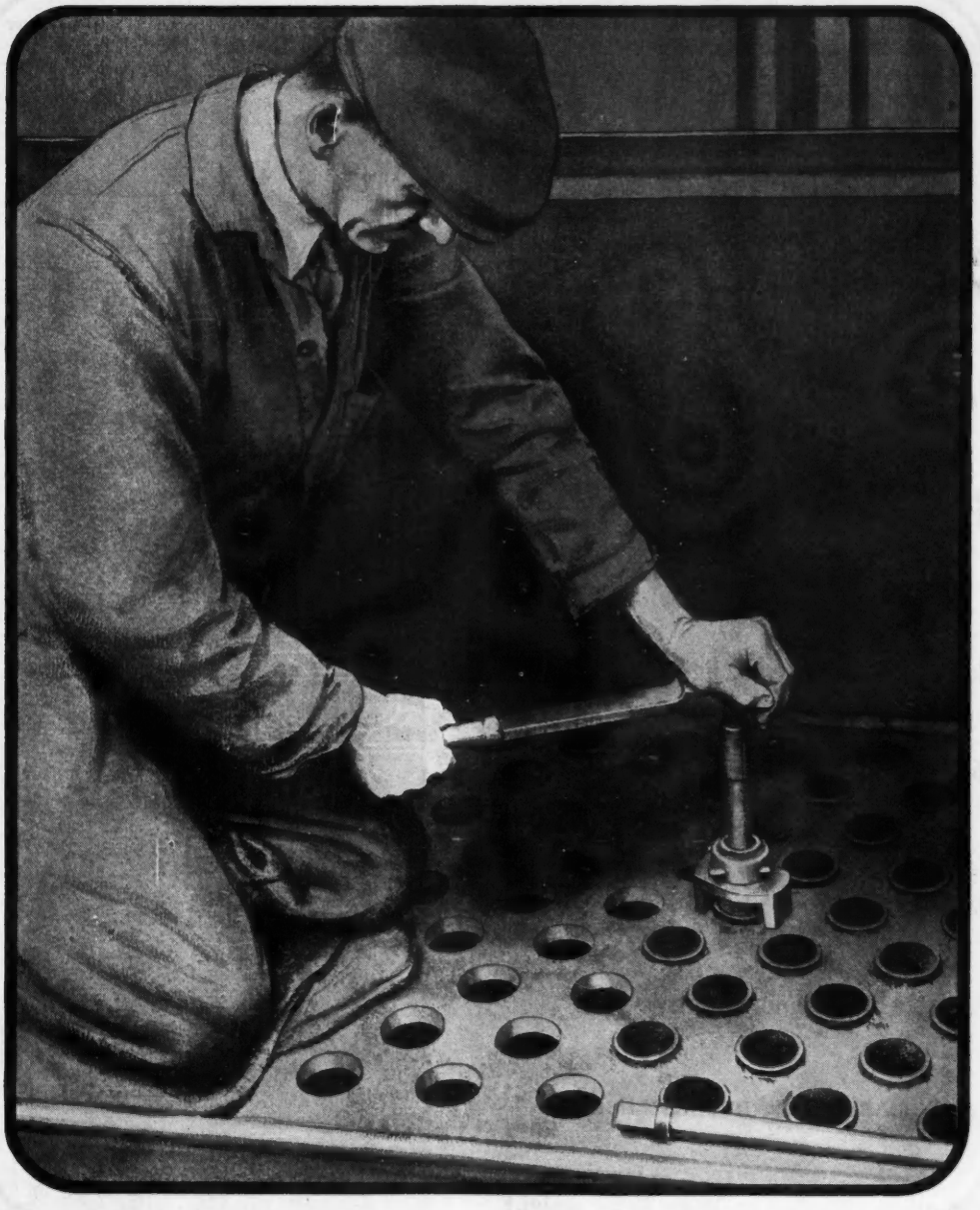

THE STEEL TUBE AGE

S & L tubes being expanded

into a condenser at the Wortley Works

in the North Eastern Gas Board area.

STEWARTS AND LLOYDS LIMITED

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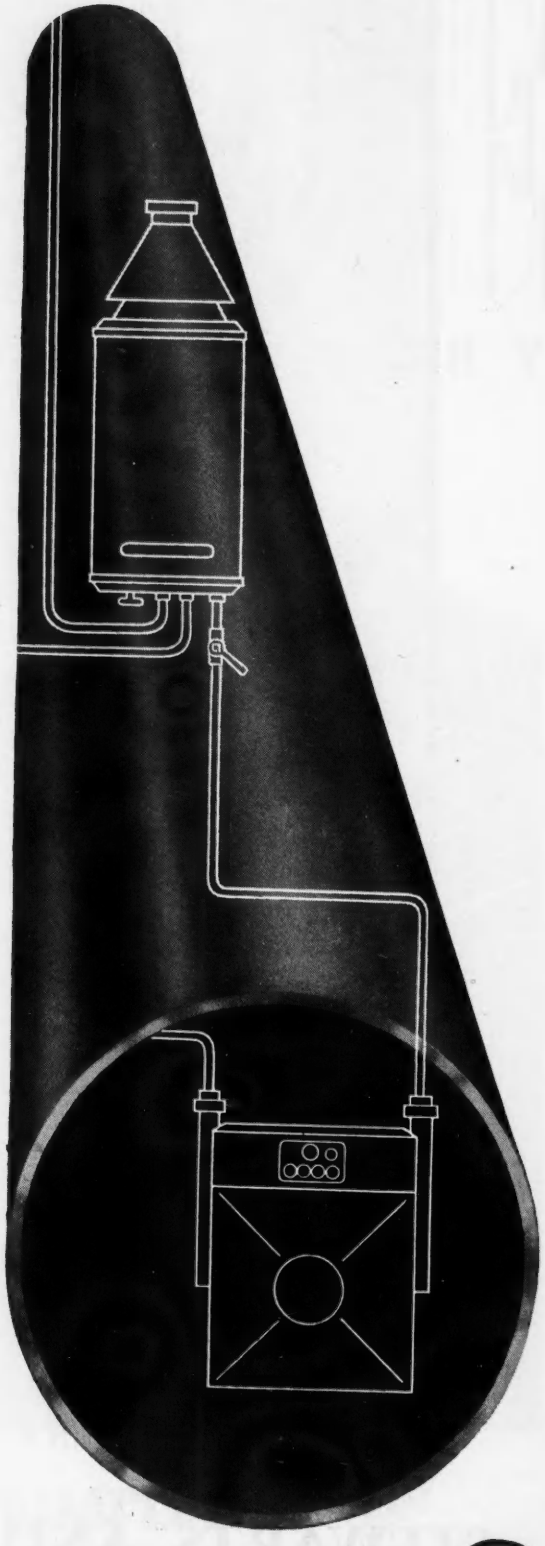
S&L

I.C.I. Copper tubes ensure trouble-free Gas Systems



For domestic gas systems, light gauge copper tubes made by the Metals Division of I.C.I. have five obvious advantages. They are:—

1 **Economical, both in laying costs and maintenance.**

2 **Not attacked by normal town gas.**

3 **Easily manipulated and installed.**

4 **Strong in relation to their light weight.**

5 **Neat in appearance.**

Whatever the building—farmhouse or factory; house, hotel or hospital—the job is better done with I.C.I. copper tubes.

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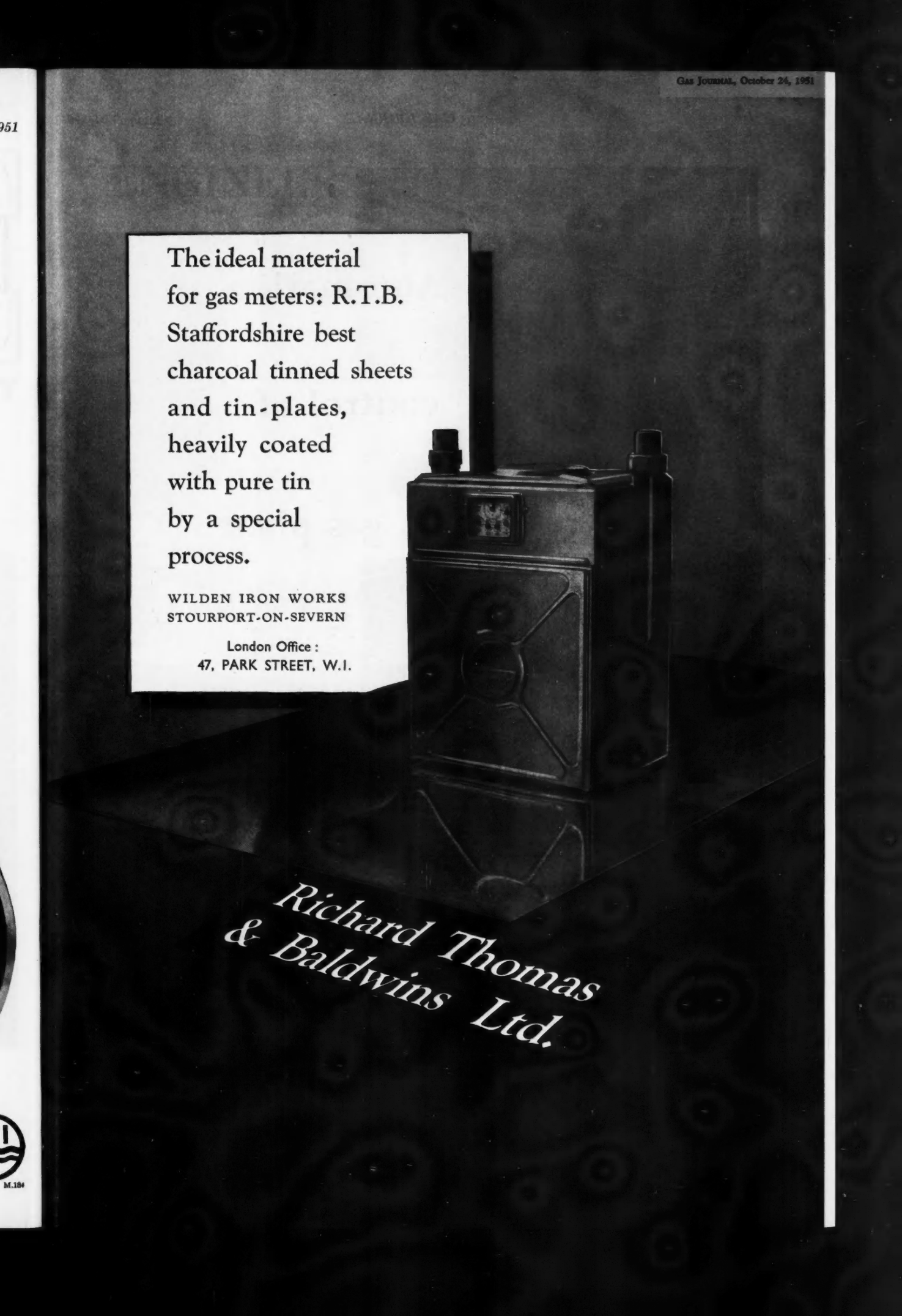
Fittings for copper tubes are made by Fyffe & Co. Ltd., Dundee, a subsidiary company of I.C.I. Ltd.

M.184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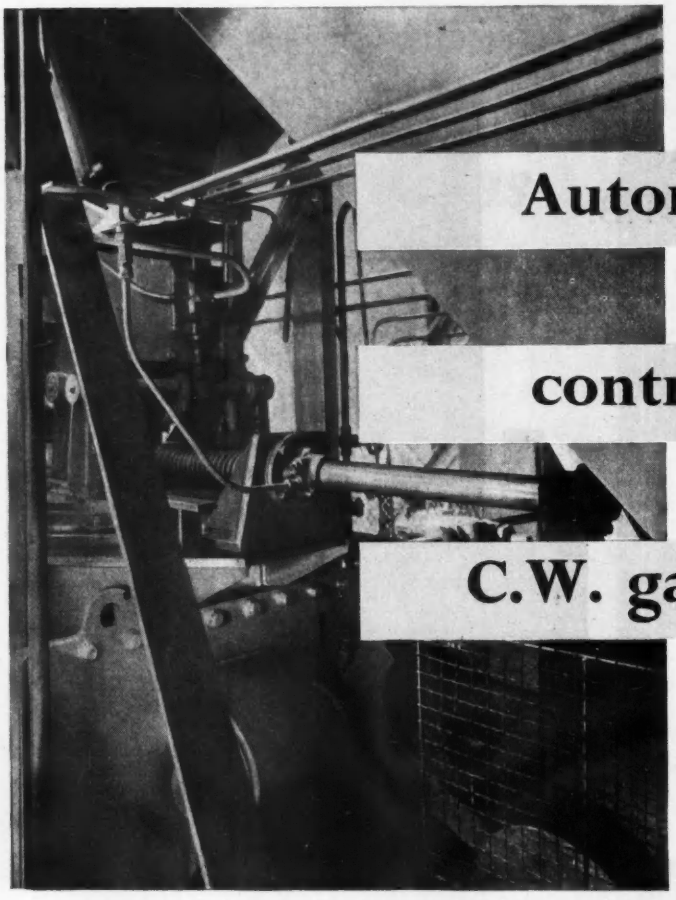

Automatic control of C.W. gas plant

Lockheed high-duty cylinder and interlock control.

Lockheed hydraulic equipment for actuating C.W. gas plant is being used to a rapidly increasing extent.

What has been stated to be one of the largest single contracts for C.W.G. plant has recently been placed with The Power-Gas Corporation Ltd. by the North Thames Gas Board, for installation at their Beckton works.

This plant—with a total daily productive capacity of 18,000,000 cu. ft. of gas, will have automatic cyclic control by the P.G.C. oil-hydraulic system, with Lockheed equipment operating at pressures up to 1,000 p.s.i.

The single-camshaft controller, with double cams for each control valve, can be adjusted to vary both the duration and make-up of the gas-making cycle. Synchronising equipment is provided to keep the plants in step.

Lockheed hydraulic equipment can be used to operate, either by power or by hand, any remote controls, with a high degree of accuracy and with the absolute minimum of maintenance.

Enquiries are invited.

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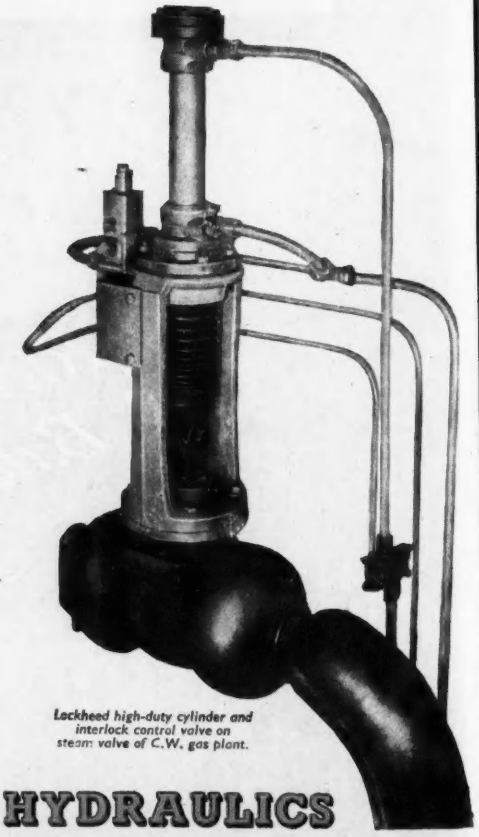

Lockheed high-duty cylinder and interlock control valve on steam valve of C.W. gas plant.

Lockheed

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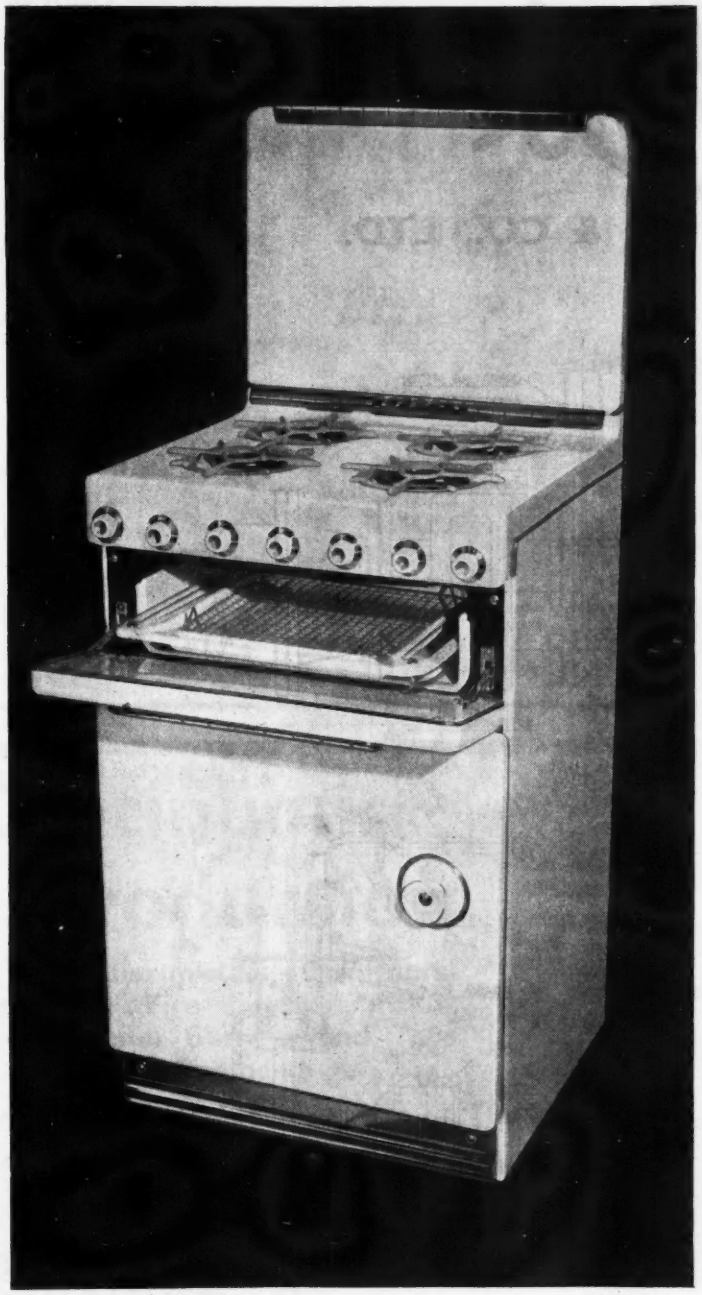

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- ★ *Enclosed* grill chamber
- ★ *Larger* grill
- ★ *Larger* oven
- ★ *Thermostatic control* of oven heat
- ★ Grill pan can be used in the oven
- ★ Oven shelves cannot tip or pull out accidentally
- ★ All oven linings are *removable*
- ★ Stands *flush* against the wall
- ★ Oven ventilation in front of splash plate
- ★ Stainless vitreous-enamel finish throughout
- ★ All metal parts are stainless and rustproof
- ★ The Raymond is the only gas cooker with all cooking surfaces enamelled white

Festival of Britain authorities have chosen the Raymond as an outstanding example of contemporary British invention, craftsmanship and design.

The most luxurious and expensive gas cooker

Praise from the experts is praise indeed. So the favourable comments on the Raymond by so many engineers have been highly esteemed by the makers. There have been enthusiastic compliments, too, from domestic equipment authorities, sales staff and housewives. Styled by the famous industrial designer, Raymond Loewy, and designed technically to give a superb performance, this most beautiful. most automatic and most labour-saving gas cooker sells at 61½ guineas. It is a cooker for the few, but all welcome it as an outstanding achievement in domestic appliances.

The Raymond is a product of

GENERAL GAS APPLIANCES LTD.

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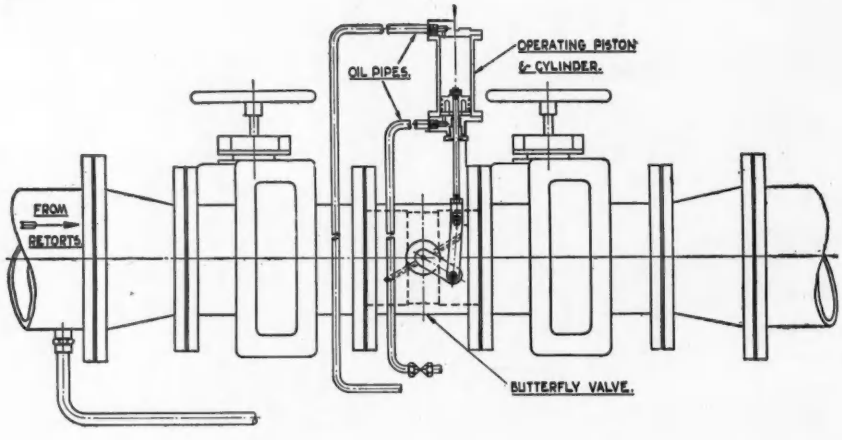
Proprietors: Allied Ironfounders Ltd.

Peebles

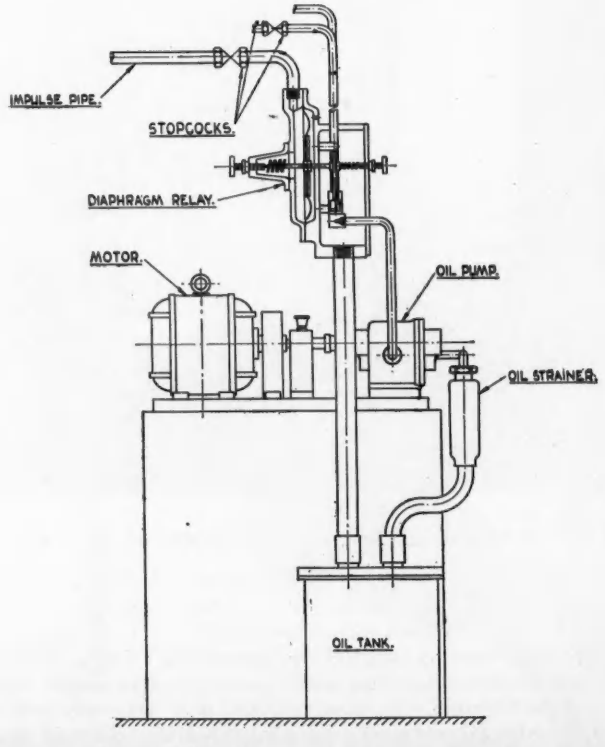
& CO., LTD.



THE BVR RETORT HOUSE GOVERNOR FIGURE 81

The initials in the title of this governor stand for Butterfly Valve Relay, which are the main component parts of this simple but very effective piece of apparatus.

Send for descriptive leaflet.



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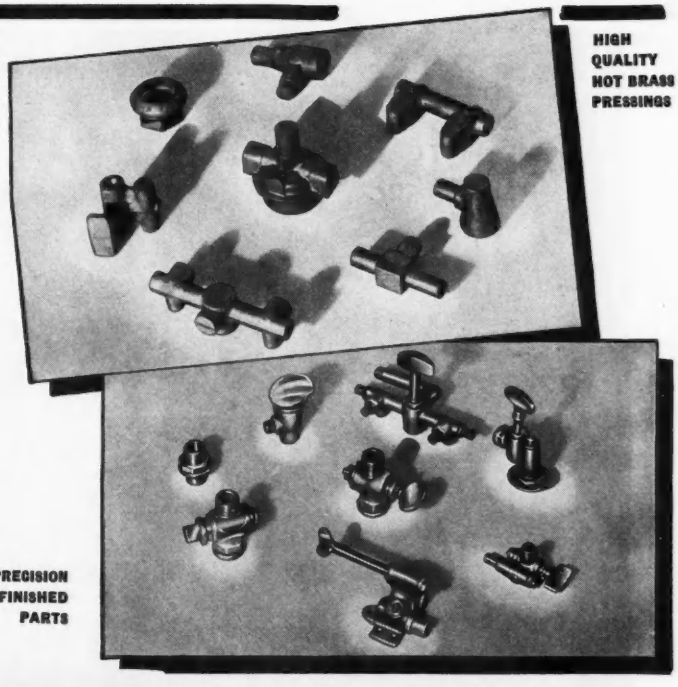

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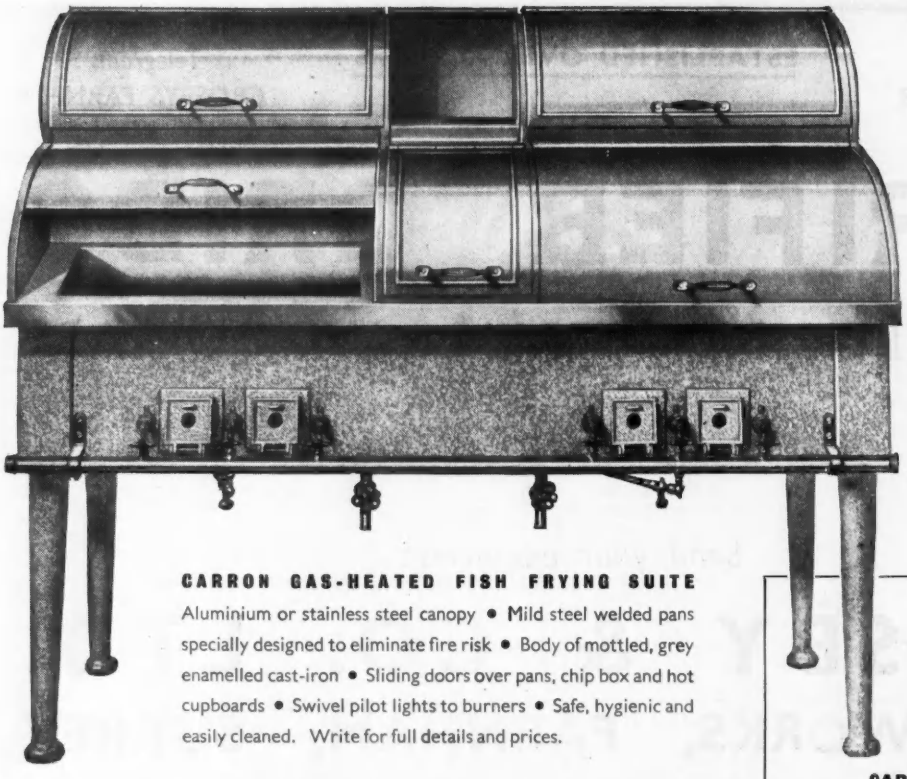

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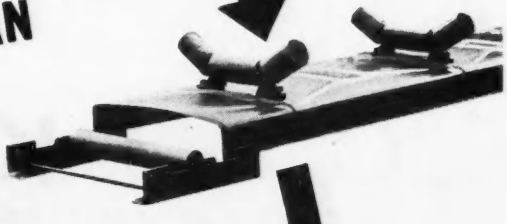
YOU CAN'T DO BETTER THAN FIT M&C IDLER ROLLERS



Most of the well-known conveyor makers buy their idler rollers from M&C. They value the supremely easy running, and the way the efficiency continues high. They know that friction-free labyrinth seals keep the ball bearings clean, and proof against attack even by penetrating dust. They have found the idlers have a long life — sometimes twenty years — preserve the belts, and reduce conveying costs. These conveyor specialists show by their example that it pays to use M&C idlers. *Booklet E.59 is yours for the asking.*

For permanent or temporary conveyors, in gantries, out of doors or inside factories, M&C sectional belt conveyors simplify maintenance. The spindle, shown withdrawn from its idler roller after long service, still has plenty of soft clean grease around the bearings.

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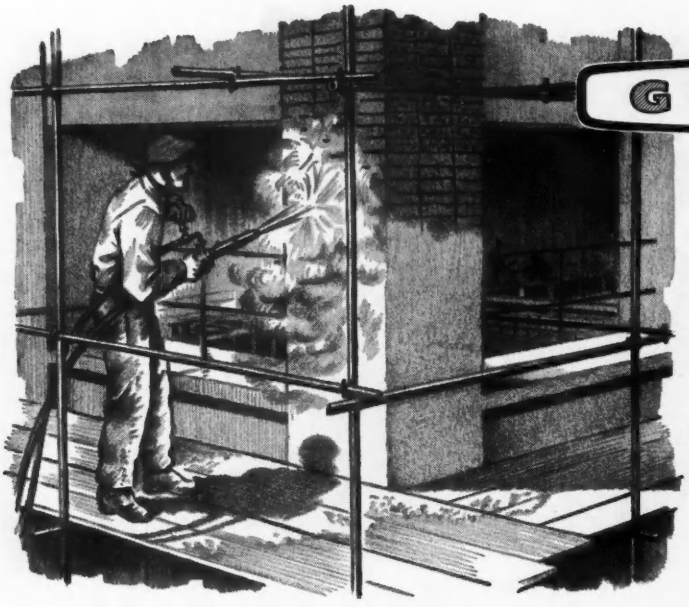

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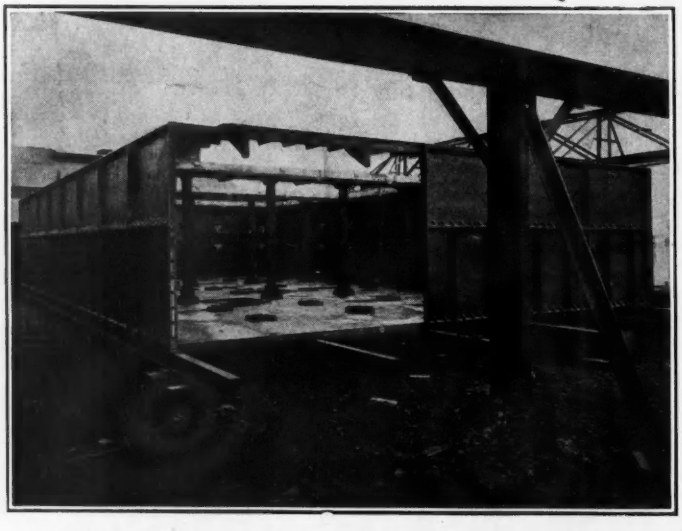

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Who makes music? *Composer, musician, conductor— and there is one other. The notes that flow from his hands echo across the world.*

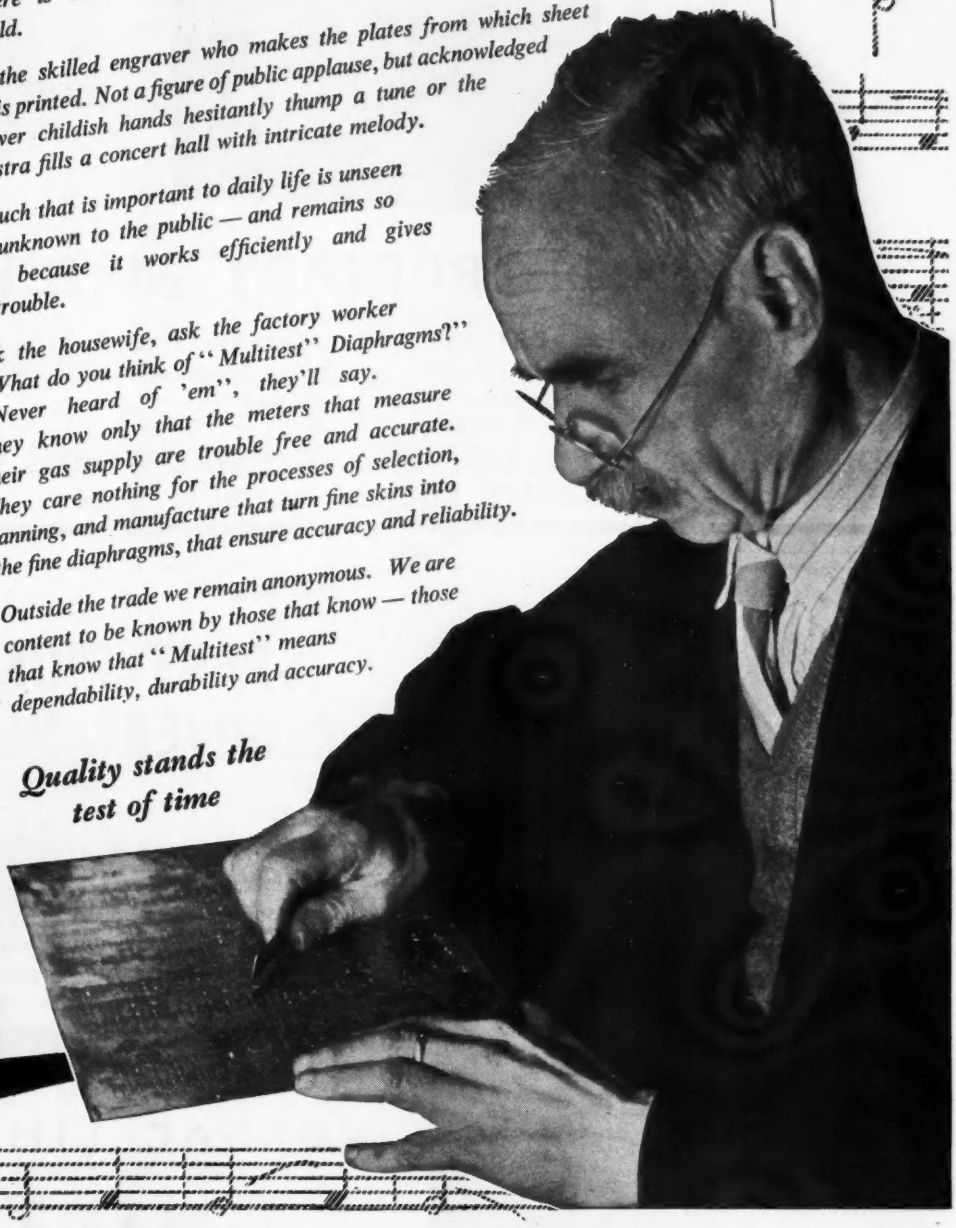
He is the skilled engraver who makes the plates from which sheet music is printed. Not a figure of public applause, but acknowledged whenever childish hands hesitantly thump a tune or the orchestra fills a concert hall with intricate melody.

So much that is important to daily life is unseen and unknown to the public — and remains so only because it works efficiently and gives no trouble.

Ask the housewife, ask the factory worker "What do you think of "Multitest" Diaphragms?" "Never heard of 'em", they'll say. They know only that the meters that measure their gas supply are trouble free and accurate. They care nothing for the processes of selection, tanning, and manufacture that turn fine skins into the fine diaphragms, that ensure accuracy and reliability.

Outside the trade we remain anonymous. We are content to be known by those that know — those that know that "Multitest" means dependability, durability and accuracy.

Quality stands the test of time



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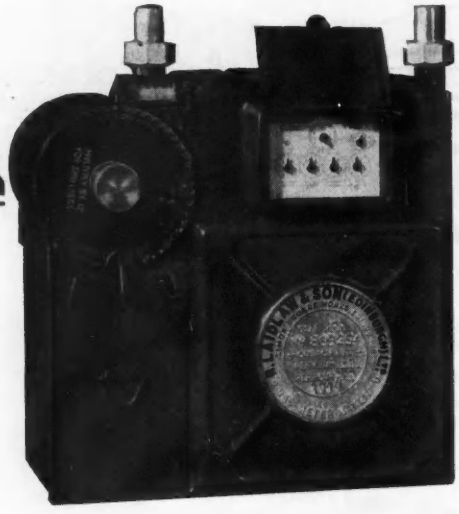

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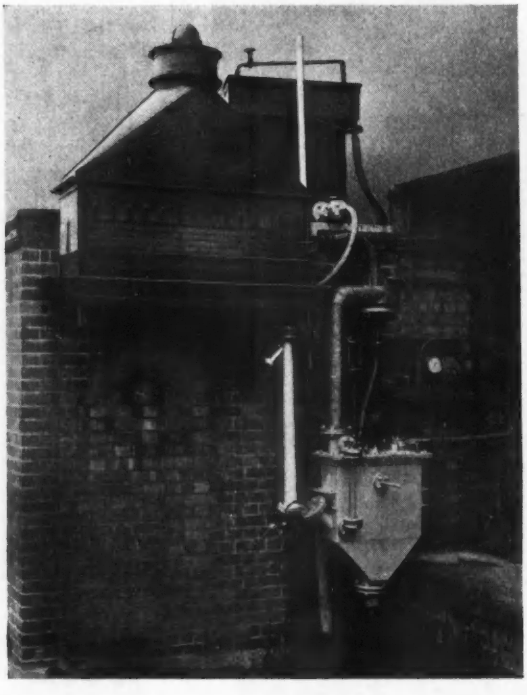

SPENT PICKLE RECOVERY PLANT

Illustration shows a Pilot Plant for evaporation of spent pickle from strip mills for the continuous recovery of free acid and monosulphate of iron by use of Swindin Patent Submerged Burner and Patent Pre-evaporator. Factor of performance 1·3. Can be seen in operation any time on application to :—

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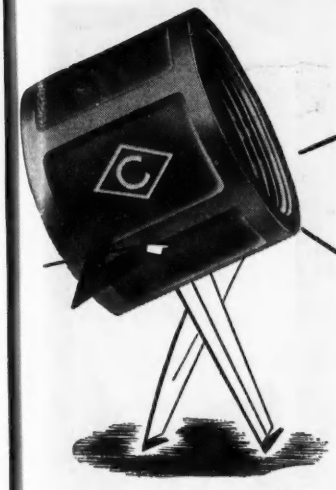
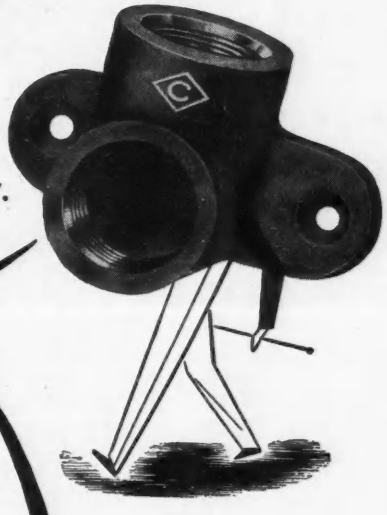
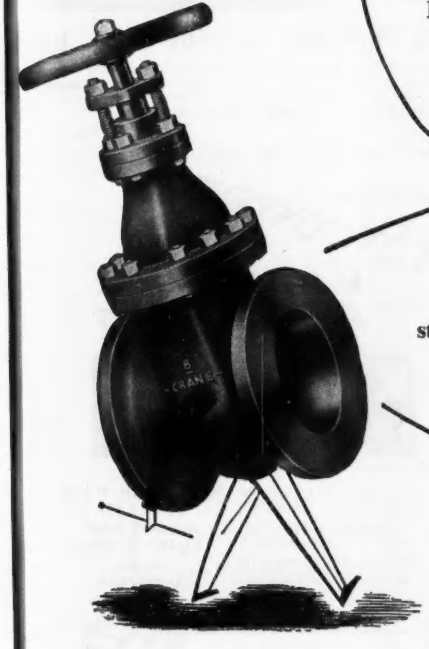


Crane Malleable Iron Banded Socket—Sizes: (equal and reducing) ¼"—6". Black and Galvanised.



Crane Malleable Iron Strapped Drop Elbow. Sizes: ¼"—1¼". Black and Galvanised.



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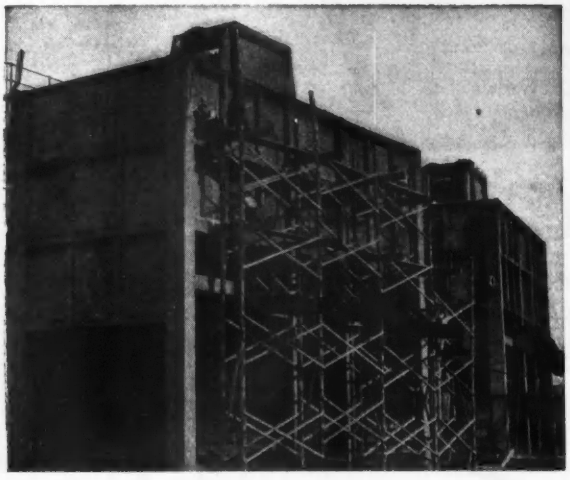

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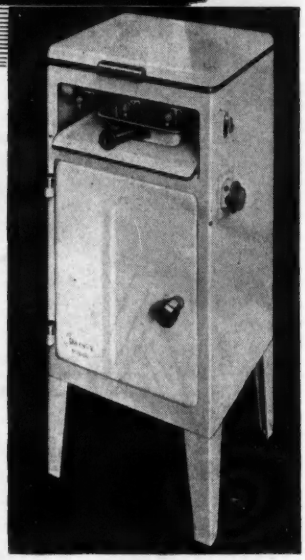

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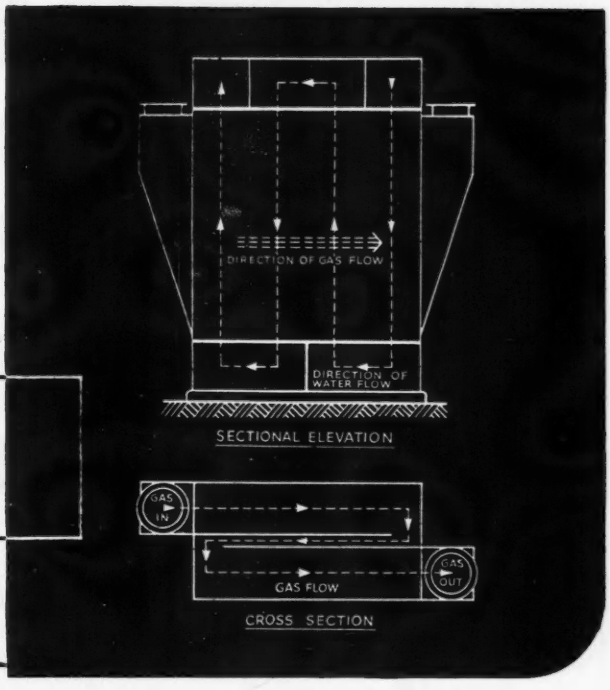

Diagrammatic arrangement of a Whessoe vertical tube horizontal gas flow condenser.

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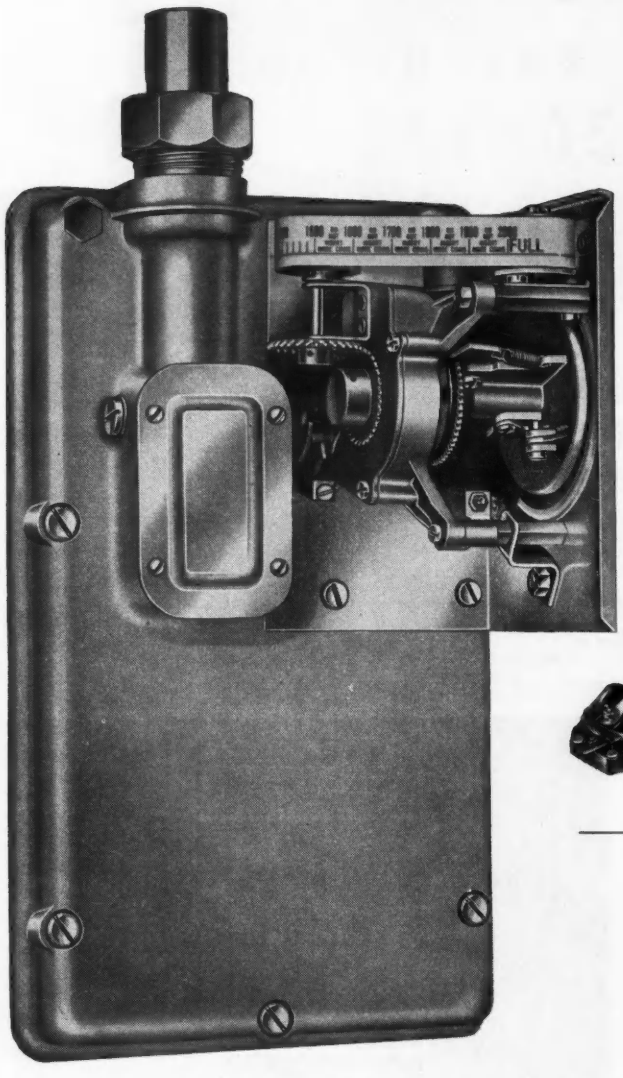

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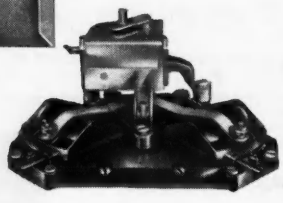

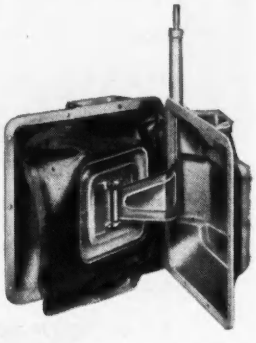

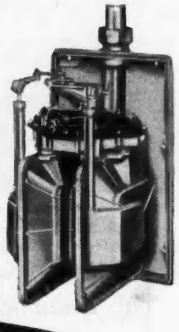

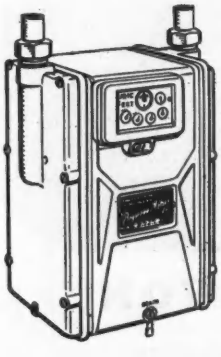

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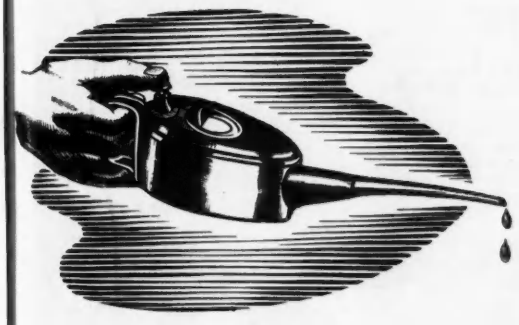

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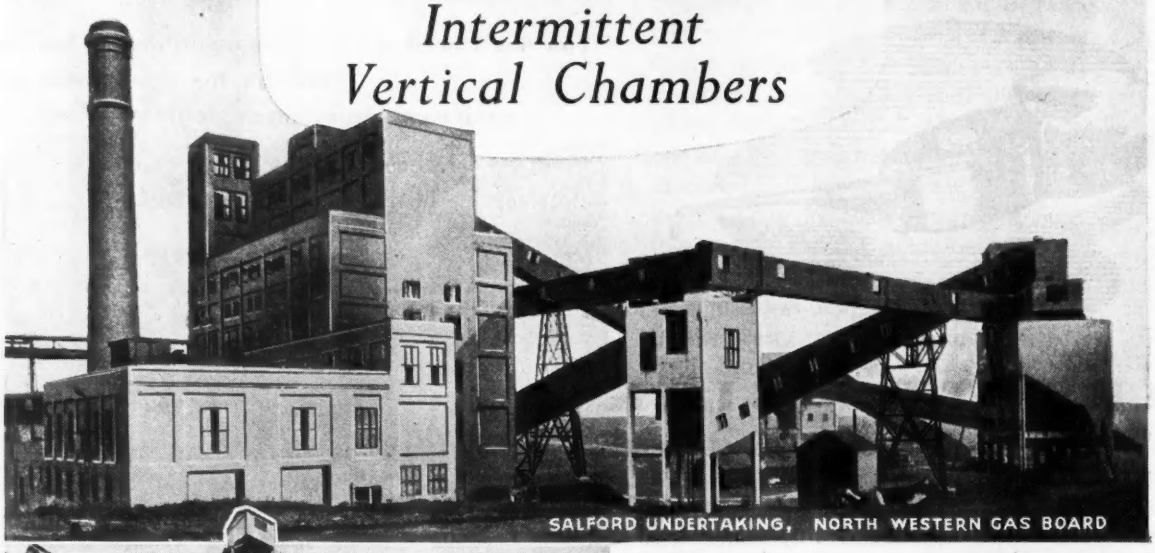

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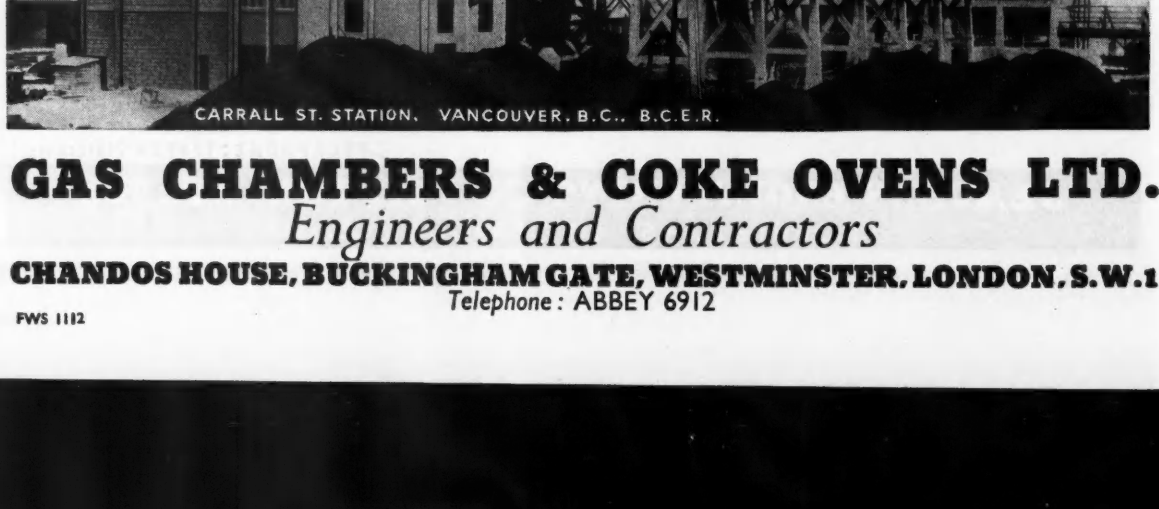

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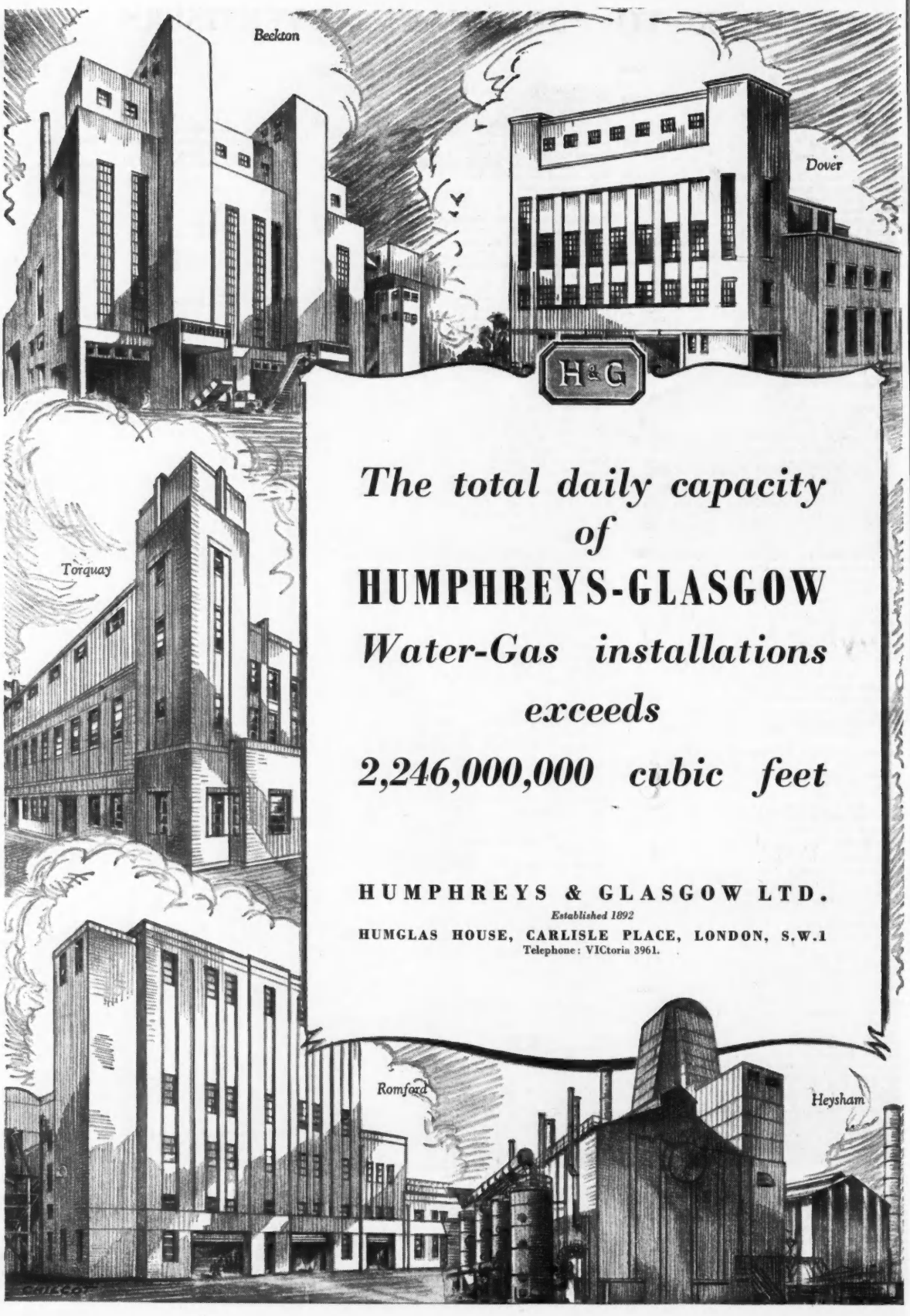

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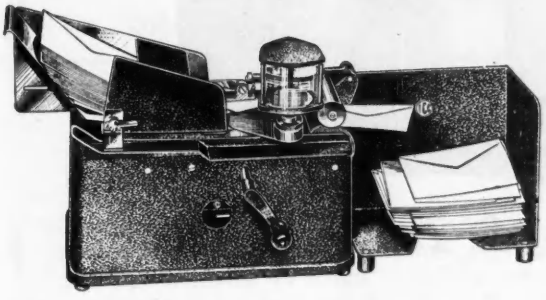

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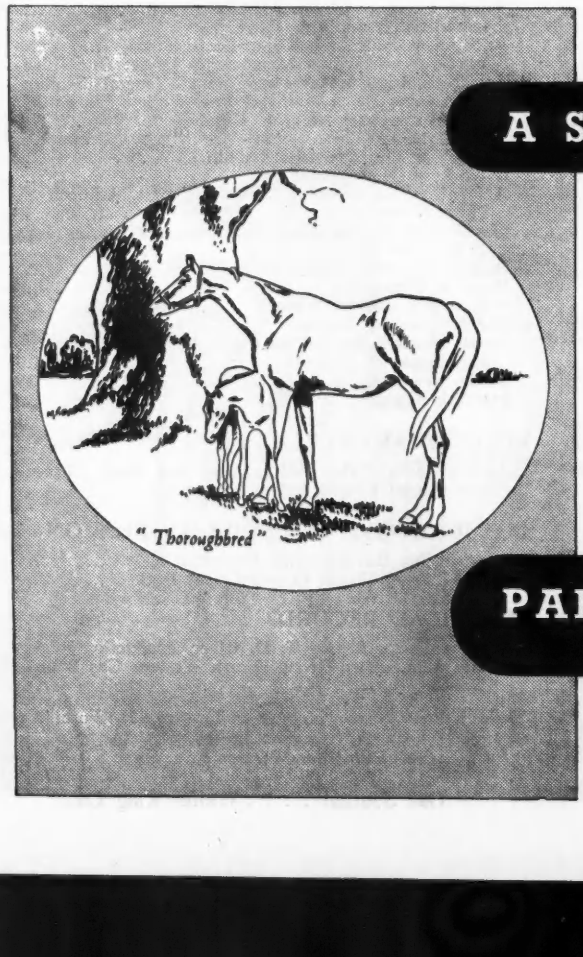

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GAS JOURNAL

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ELECTRICITY SUPPLY

COINCIDENT with the holding in London of a two-day conference aimed to discover ways and means of mitigating the effects of fuel and power shortage—coal and electricity—(see last week's *Journal*) came the issue by the British Electricity Authority of its third report and accounts covering the year ended March 31, 1951. Salient features from the report are set out on p. 215, and our extract gives an easily assimilated picture of the electricity industry today. Since April 1, 1948, electricity in this country has made very great headway, but development has taken place on the basis of more and more generating plant at all cost irrespective of the type and incidence of the connected load. April 1, 1948, was, of course, vesting day for the electricity industry and throughout the report comparisons are made, naturally and legitimately enough, between the position of the industry in 1951 and its position prior to nationalisation. But what we would stress is that development was bound to take place and that nationalisation *per se* is not by any means necessarily its cause. Great progress in generating capacity and in current sold has been effected, but this progress has gone forward in many ways on haphazard lines. Domestic heating loads (cooking, water heating, space heating) have been blissfully encouraged to the detriment of the supply of electricity to industry, and this policy has brought the industry into an irrational and wholly unbalanced situation. Discussion and trenchant criticism centred on this unbalanced policy during the conference to which we have referred and on which we commented at some length in these columns last week.

With its capital expenditure, the electricity industry has made very great progress. Capital expenditure during the year amounted to £127 mill. (£114 mill. in 1949-50—but compare with the gas industry's capital expenditure) and about 90% of this related to power station construction and extension, as in the previous year. Today the electricity industry has over 13 mill. consumers. More than 3 mill. consumers have been added since 1939. It generates 55,500 mill. units and sells 46,500 mill. units, the difference being accounted-for by losses in transmission and distribution. The figures, of course, refer to March 31 of this year. Sales have more than doubled since 1939. The last accounting year showed an increase of over 12% compared with the previous 12 months. Since 1947-48 industrial sales have grown by 32%, commercial by 54%, farm by 94%. The number of farms connected in 1950-51 was the highest annual increase so far recorded. Yet industry is crying out for power and load shedding becomes an increasing nightmare to the consumer and a more and more severe headache to the electricity supply industry. Load shedding will, according to the report, be continuously necessary because of the shortage in generating plant. It will, it is stated bluntly, take several years to effect a substantial reduction in load shedding. And while industry is calling for power, for electricity sold to domestic, commercial, and small power consumers, the 1950-51 average price of 1.463d. per unit was 8.3% below the pre-war average. For far too long the electricity supply situation has been out of hand. The lop-sided position of today has been created by a one-track policy uninfluenced, or little influenced, by the fuel problem as a whole in relation to the national economy. The remedy lies in encouraging the use of electricity for those purposes for which it is especially fitted.

FUTURE OF THE UNIONS

THE Acton Society Trust is rendering a valuable public service in presenting, in its series of research papers dealing with aspects of the nationalised industries, a strictly impartial exposition of such varied matters as the powers of the Minister, the men on the boards, accountability to Parliament, problems of pro-

motion policy, and the extent of centralisation—on all of which there are wide differences of opinion, political and otherwise. It has now reached the eighth of the series—'The Future of the Unions'—in which it discusses some of the most delicate aspects of the whole structure of the nationalised industries. Such industries are to a great extent the creations of the trade union movement, and many who expected that nationalisation would introduce an era of peaceful co-operation on the part of the unions have been surprised by the various disputes which have arisen. Actually, nationalisation has presented the unions with a most difficult challenge—the opportunity of making their voice heard in the running of the industries by the institution of a system of joint consultation and, less directly, through the appointment of former union leaders to the boards—for which they found themselves ill-prepared. Many of the organisational difficulties arise from the large number of unions concerned with the nationalised industries; more than 50 unions are concerned with the five industries—coal, electricity, gas, transport, and airways—covered by the report. Except for a number of smaller unions, mainly of non-manual workers, such as the British Gas Staff Association, the unions have only a small proportion of their membership in any nationalised industry. The National Union of General and Municipal Workers started as a gas workers' union and while it has the largest membership in the industry, which has 140,000 employees, its total membership of 800,000 is many times greater.

The gas industry has a long and honourable record of good industrial relations, but as one of the nationalised industries it comes into the picture of inter-union problems and is concerned also with the question of the place of the 'managerial union'—the Gas Officers' Guild—in the general scheme. There are now three main bodies of employees represented by the unions—manual; clerical, technical, and administrative; and managerial—a development which increases the possibility of disputes, since clerical unions feel themselves capable of organising managers while, correspondingly, management associations often enrol clerical and technical workers. The report studies the practical difficulties of joint consultation, the unions' changing rôle, and relations with members, and concludes that the time has come for a comprehensive survey and examination of the whole union movement. Review of principle, says the report, is only half the problem. The other half is the task of educating members into a fuller understanding of the unions' aims and problems which hinder the achievement of those aims. Furthermore, the problem is not only a domestic one for the unions. The consuming public suffer directly from the disputes which arise, and in a wider sense it cannot afford to have the development of basic industries held up by what can only seem, from this larger viewpoint, to be petty squabbles.

An appendix to the report tabulates the unions and associations represented on the negotiating machinery in each nationalised industry or which are recognised for negotiation by the boards. The gas industry, with its 140,000 employees, is served by 14 unions and federations, one managerial; six clerical, technical, and supervisory; and seven manual. The three sections are not exclusive categories; the description indicates only the predominant character of the unions. For instance, many of the manual workers' unions also recruit clerks, technicians, and junior managers. Referring to the allocation of seats on joint consultative, negotiating, and other committees, the report notes that in gas an ingenious arrangement has been devised to enable six unions to share two seats on the National Joint Council for Gas Staffs, officials taking turns to serve.

GAS IN COVENTRY INDUSTRY

THE new President of the Midland Juniors, Mr. R. B. Watkins, is, like his predecessor, Mr. J. Palser, from whom he received the President's badge on October 9, on the industrial side. That is not remarkable when one considers the area from which the Association draws its members. What is of interest is that both wrote their Presidential Addresses from the industrial viewpoint. Of the two, that by Mr. Palser was the wider in scope since it dealt with the history of industrial gas and the part played in its development by the Industrial Gas Centres. Mr. Watkins, on the other hand, confined his subject matter to a description of the industrial gas load at Coventry, where he was appointed Industrial Gas Officer in 1939, subsequently holding a similar position for the Warwickshire division of the West Midlands Gas Board. The choice is a happy one, for there are few cities which lend themselves so readily to an analysis of this nature. Coventry's dependence on industry is as remarkable as its industry's dependence on gas. Unlike Birmingham, its industry is highly specialised, but within these limitations it has a national, and even international, significance. As Mr. Watkins points out, no city in the world of comparable size turns out so many motor vehicles—an industry which accounts for close on half the industrial gas load—and its connection with the manufacture of aircraft, textiles, machine tools, etc., is well known.

Mr. Watkins's address is straightforward and uncontroversial. He neither puts forward new theories nor castigates old ones; he is content merely to tell a story, to trace a growth. But readers of the address—it was published on pp. 174-178 of last week's issue—will have noted one piece of information which, if new to them, is likely to provide food for thought. It is this: Coventry's Industrial Department embraces not only what is usually regarded as the industrial load—*i.e.*, gas required for various manufacturing processes, steam manufacture, and so on. It also embraces the commercial catering and space heating loads. Thus, everything that is not domestic is regarded as being industrial. This, it is claimed, has several advantages, chief among which is the ability to train and utilise representatives as members of an omnibus department. 'For many years,' states Mr. Watkins, 'I have endeavoured to make each member of the staff particularly responsible for one class of consumer. . . Although it is not my intention to tie an individual down to, say,

the sales of catering equipment, it is a great advantage to have one man specialising in this class of work. He in his turn can be of assistance to other members of the staff when difficulties arise.' There would indeed appear to be some advantage in 'borrowing' someone from one's own department, instead of making application through somewhat involved channels. At Coventry belief in this method is strengthened by the fact that the 'industrial' department is housed in its own building which includes heat treatment shops and a commercial showroom containing a range of commercial cooking, baking, and space heating equipment.

Theories must be judged by results and in this case there is no lack of evidence to support the wisdom of these methods. For the year ended March of this year, total gas sales to the Coventry area were nearly 5,000 mill. cu.ft. and of this almost half was for industrial purposes—the highest industrial consumption since 1944. Such figures reveal wise and vigorous management, and if these qualities are necessary in running a large department, they are no less important in running an association. Thus, Mr. Watkins's record as industrial salesman augurs well for his record as President, and we look forward to the current Midland Juniors' session under his guidance, believing that like those who have held the position before him, he will be true to the aims of the Association and all that is implied by this special use of the term 'Junior.'

DISAPPOINTING RESULTS

THERE are several reasons why candidates do badly in examinations. It may be the old bogey, examination nerves; it may be faulty instruction; it may be insufficient preparation. Of the first the examiner cannot easily judge; of the second he can gain a pretty shrewd idea; of the third he can be tolerably certain. Both the last two causes are considered by the Board of Examiners to be responsible for the exceedingly disappointing results of the Institution of Gas Engineers 1951 Examinations, an abstract of whose report was published in the *Journal* of October 17.

The results of last year's examinations left a great deal to be desired. This year's are even worse. For purposes of comparison, we quote the percentage of failures in the four main examinations, with the relative figures for last year in parenthesis: Ordinary Grade Gas Engineering (Manufacture), 41.6% (42.6%); Higher Grade (Manufacture), 60.1% (36.7%); Odinary Grade (Supply), 50.6% (39.0%); and Higher Grade (Supply), 64.2% (55.8%). We thus find a total of 54.1% of failures, or 10% more than last year. Of all the 588 candidates (25% fewer than last year) there was but one who passed 'with distinction'—though it may be noted that this was one more than in 1950. No candidate qualified for the Herbert Lees Memorial Prize. The standard of answers submitted for the Diploma examinations did, however, show a slight improvement over those of the previous year.

Such results two years in succession must cause the industry no little concern, not the least serious aspect being the apparently low standard of general education revealed by poor grammar and prose. For while the engineer may reasonably argue that he is no less sound a technician because of an inability to express himself coherently on paper, it is obvious that such a handicap must prove a bar to the higher administrative posts in the industry which each one must hope eventually to attain. Two points emerge clearly from this year's results. The first is that students must be strongly discouraged from entering for examinations without adequate preparation. The teachers themselves could assist in this by instituting some kind of qualifying test. The second, and perhaps even more serious, conclusion is that the quality of teaching at some of the technical colleges leaves something to be desired. It is to be hoped that the facilities offered in connection with the Register of Teachers in Gas Subjects, recently initiated by the Institution, will bring about an improvement.

INTERNATIONAL GAS CONFERENCE

PROVISIONAL arrangements have been made by the Council of the International Gas Union to hold the Fifth International Gas Conference at Brussels from June 16 to 21 next year, under the Presidency of M. Marcel Brabant, who was elected President at the Fourth International Gas Conference held in London in the summer of 1949. The Institution of Gas Engineers is a founder member of the International Union, and members of the Institution have received intimation that the programme will include the discussions of reports and papers, works visits, social functions, ladies' visits, etc. Preliminary notice has also been given that the 89th annual general meeting of the Institution will be held in London from May 27 to 30.

STATISTICS

FIGURES can be made to prove almost anything, according to the whim of the compiler (or the dexterity of the politician). Lots of people revel in them—and for this reason we cannot forbear to quote some intriguing ones from a recent issue of *Blue Flame*, employees' magazine of the Toronto Consumers' Gas Company, someone on whose staff has obviously been researching into the risks and hazards of everyday life. For instance, we are told that we can expect a gas main to break within 100 ft. of our house once every 310 years. (Correspondence on this subject from gas engineers in mining areas liable to ground subsidence is not invited). Again, we may anticipate a leak in our gas service once every 475 years, just as we may expect our house to catch fire as a result of our careless smoking habits once every 690 years. Curiously enough, coal furnace overheating and electrical wiring faults are identical risks—each likely to set fire to our house once every 2,600 years. We leave till last the remarkable fact that gas may be expected to cause a fire at home only once every 57,000 years. We feel encouraged by the thought that if only we can manage to get through the next 57,001 years without a serious fire in our home attributable to gas we shall have beaten the statistician, or at least upset the law of averages—which is always a satisfying thing to do.

Letter to the Editor

SENIOR GAS OFFICERS' JOINT COUNCIL

DEAR SIR,—I have read with interest the article on 'The Gas Officers' Guild,' in the *Journal* of October 17. This begins by reference to the Senior Gas Officers' Joint Council and to the constituent membership, wherein Nalgo is mentioned. Thereafter the article refers solely to the Guild and to the need for support of the Guild.

While agreeing with many of the excellent suggestions made in the article I would like to make the position of senior officers clear. There are two 'appropriate organisations' recognised for senior officers, the Guild and Nalgo, and whatever proposals are made by the officers' side in the Senior Officers' Joint Council are made after joint consultation between the two organisations. From the article the impression might be formed that the Guild only deals with the affairs of senior officers. This is not so as Nalgo has represented senior gas officers for some 45 years. In fact many members of the Guild are also members of Nalgo.

The relations between Nalgo and the Guild are most cordial; there is full co-operation between the two organisations.

Yours faithfully,

J. E. N. DAVIS,
Chief Organisation Officer.

National Association of Local Government Officers,
1, York Gate, Regents Park, N.W.1.
October 19, 1951.

Obituary

We regret to record the death of **Mr. Lewis Seaman,** M.INST.GAS E., Managing Director of the Bryan Donkin Co., Ltd., Chesterfield, which occurred suddenly following a heart attack on October 19. Mr. Seaman had been with the Company for more than 52 years, having entered its service in 1909. He became Technical Manager in 1926 and was appointed Technical Director in 1941. A few years later he was appointed Assistant Managing Director, and he succeeded Mr. George Clark as Managing Director two years ago. Mr. Seaman, who was 66 years of age, was widely known in the gas industry as an authority on gas distribution problems. He was a Director of B. H. D. Engineers, Ltd., and a member of the Board of George Waller and Son, Ltd., another of the B.H.D. Group.

Personal

Mr. A. G. Findlay, former Chief of Special Products Division, Head Wrightson Processes, Ltd., has resigned his appointment to join Monsanto Chemicals, Ltd.

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Mr. J. Lachlan Sturrock, lately Area Sales Manager for the Midlands, South West England and South Wales, has been appointed Sales Manager of E. Boydell & Co., Ltd., of Old Trafford, Manchester, and will operate from Manchester. Mr. Sturrock is a member of the Institute of Plant Engineers and was recently the winner of the Duckham Memorial Award for a paper given before the Institute on earth moving plant. He also serves on the advisory panel of the Road Research Laboratories.

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Mr. Leslie Hardern, Public Relations Officer to the North Thames Gas Board, has been elected Chairman of the Incorporated Advertising Managers' Association. His business training was with the Linen Thread Company at Glasgow and in Italy. Returning to England he helped in the early attempts to rationalise the cotton industry, and then took over the management of a firm merchanting and exporting cottons, woollens and silks. Later he investigated the making up trade, and set up a dress manufacturing company in Manchester. He then made a market investigation of South and Central America and the West Indies for the Lancashire Cotton Corporation, and on his return took control of their 10,000 looms. Finally he came to London, and spent four years on the sales re-organisation of the Gas Light and Coke Company, before taking over their public relations.

Mr. F. A. Rhead, Manager of Peterborough gasworks since 1946, and Group Engineer and Manager since 1949, has been elected President of the Peterborough Engineering Society. Mr. Rhead, who for over 25 years has been associated with the gas industry, was at one time with the Redditch Gas Company. He later became assistant manager at Stourbridge and Wallasey and for 10 years, before being appointed Manager at Peterborough, he was assistant engineer and general manager of the Exeter Gas Light and Coke Company. He is Senior Vice-Chairman of the Eastern Section of the Institution of Gas Engineers.

Diary

Oct. 26.—Midland Section, I.G.E.: Autumn Meeting. 'The Development and Administration of a Small Group of Undertakings,' E. B. Craddock (Aylesbury). Queen's Hotel, Birmingham, 2.30 p.m.

Oct. 27.—London and Southern Juniors: Visit to South Eastern Gas Board's Waddon Works, Croydon, 2.30 p.m.

Oct. 30.—London and Southern Section, I.G.E.: Annual General Meeting. 'Training for Management,' Norman C. Rimmer, Director of Training Wing. Roffey Park Institute of Occupational Health and Social Medicine. 17, Grosvenor Crescent, 2.30 p.m.

Oct. 30.—Society of Instrument Technology: Presidential Address, 'Development of Materials for Instrument Manufacture,' E. B. Ross. Royal Society of Tropical Medicine and Hygiene, Portland Place, 7 p.m.

Oct. 31.—Eastern Section, I.G.E.: 'References and Experiences Relative to Gasworks Foundations,' A. G. Bird, M.I.MECH.E., M.INST.GAS E. (Director and London Manager, West's Gas Improvement Co., Ltd.). 17, Grosvenor Crescent, S.W.1. 2.30 p.m.

Nov. 1.—North Thames G.C.C.: Westminster City Hall, Charing Cross Road, 2.30 p.m.

Nov. 1.—Midland Juniors: Half day visit to works of Sperryn & Co., Birmingham, 2.30 p.m.

Nov. 1.—Scottish Juniors (Western): Evening visit to Colvilles, Ltd., Clydebridge, Glasgow.

Nov. 2.—London and Southern Juniors: Short Papers. Edgware Road, 6.30 p.m.

Nov. 3.—Scottish Juniors (Western): Smoking Concert, Glasgow.

Nov. 3.—Yorkshire Juniors: 'Some Aspects of Distribution Control as Applied to Interlinked Undertakings,' F. S. Charnley, Deputy Chief Engineer, North Eastern Gas Board. Sheffield.

Nov. 5.—Women's Gas Federation: Executive Committee, Gas Industry House, 1 p.m.

Nov. 5-6.—Women's Gas Federation: Seventh Branch Conference, Gas Industry House, opening 3 p.m., Nov. 5.

Nov. 6.—East Midlands G.C.C.: Town Hall, Chesterfield, 2.30 p.m.

Nov. 6.—South Eastern G.C.C.: Board Headquarters, Katharine Street, Croydon, 2.30 p.m.

Nov. 6.—Wales (North) Juniors: Visit to works of Sawer and Purves, Ltd., Manchester, leaving Colwyn Bay 9 a.m.

Nov. 7.—Scottish Juniors (Eastern): Visit to Portobello Power Station, Edinburgh.

Nov. 9.—Scottish Juniors (Western): 'Gas Meters and Appliances,' by a speaker from George Wilson Gas Meters, Ltd. Royal Technical College, Glasgow.

Nov. 10.—Western Juniors: 'Coke Quality,' R. W. Cameron (Bristol), and visit to Weston-super-Mare gasworks.

Nov. 12.—West Midlands G.C.C.: Room 159, Queens Hotel, New Street Station, Birmingham, 2.30 p.m.

Nov. 13.—Midland Juniors: 'The Use of Producer Gas for Peak Load Outputs,' D. J. Ward, Birmingham. Staff Mess Room, West Midlands Gas Board, Birmingham.

Nov. 14.—Industrial Gas Development Committee: Gas Industry House, 9.30 a.m.

Nov. 14.—Institution of Gas Engineers and Coke Oven Managers' Association: Joint Meeting. 'Recent Researches in Carbonisation,' W. Idris Jones, B.SC., PH.D., Director General, Scientific Department, National Coal Board. Waldorf Hotel, Aldwych, 2.45 p.m.

An Electricity Chief Tells

A VERY SAD STORY

(From Our Special Correspondent)

INTRODUCING the speaker at the opening meeting of the new season of the North Western Fuel Luncheon Club in Manchester, Colonel W. M. Carr, who presided in the absence of the President, Mr. C. T. S. Arnett, whose untimely death has since been noted with great regret, expressed disappointment that nationalisation of the three major fuel industries appeared to have done nothing much to increase co-ordination between them, nothing towards the planning on a major scale of the national fuel economy.

The speaker was Mr. R. A. S. Thwaites, Deputy Chairman of the North West Electricity Board, and his title was 'Planned Co-operation or Chaos.' When the daughter of a friend of his was a little girl she used to tell herself stories in bed. One morning she said, 'Mummy, last night I told myself such a sad story that I made myself cry.' The story he had to tell was a sorry one. He hoped it would not make his hearers cry but he did hope and believe it would arouse indignation sufficiently to cause a vigorous reaction. The British Electricity Authority had done all it could—and failed.

The plant position estimated by the B.E.A. for this coming winter is that under conditions of 'an average cold spell' the maximum demand is likely to be 14.4 mill. kW against which the available output capacity of the generating stations will be only 12 mill. kW—a deficit of 2.4 mill. kW. The estimate is based on the unlikely assumption that adequate supplies of domestic solid fuel will be available.

Mr. Thwaites traced the story of electricity supply back to 1926. In 1936, the national grid having been brought into normal operation, there was reserve generating capacity of about 2 mill. kW with a maximum demand of 6 mill. which was fairly considered 'appropriate to interconnected working.' In 1937, however, the Central Electricity Board was already reporting that 'owing to delays, the proportion of spare plant actually available . . . had fallen somewhat below the desired level,' and that 'the demands for materials arising largely out of the armament programme led to serious delays in the completion of extensions.' This deterioration continued in 1938. At the outbreak of war it was erroneously deemed that demand would fall, and a substantial part of the programme of new generating plant construction was cancelled. In the event, demand increased enormously.

After the war, efforts to restore equilibrium were continually thwarted by inadequate allocations of labour, materials, and capital to new construction. In the closing days of its existence the C.E.B. had planned for bringing into commission during the years 1947-52 plant to the capacity of nearly 10 mill. kW which was considered by the supply industry to be essential. Actually less than half this amount is likely to be brought into commission by December, 1952.

The new British Electricity Authority which came into being with nationalisation in April, 1948, finds its efforts frustrated and restricted in just the same way as its predecessors. The allocation of materials and capital to new construction is totally inadequate. It is a nice argument whether the output of electrical generating plant and boilers should be largely allocated to export, leaving other export industries to be crippled by power cuts, or whether it would not be sounder policy to satisfy first the home needs of electricity generation, thus keeping other export industries, not to mention the armament industries, at full output. The Minister of Fuel and Power has himself suggested that power cuts during last winter had cost the country between £8 and £10 mill. worth of industrial production. Such a sum, says Mr. Thwaites, would meet the annual costs on no less than 1½ mill. kW of plant.

'But the matter goes much farther than that—because the substitution of that amount of modern plant for the corresponding amount of old and inefficient plant, which still has to be operated for long periods, would effect a saving of 1½ mill. tons of coal and a cost of £3½ mill. per annum.'

Turning to the consumer side of the picture and the growth of the load, Mr. Thwaites related the story of the production of 2¾ mill. cheap electric radiators during the first year after the war 'to keep the light metal industry busy.' Of these, 2½ mill. went into the home market representing a potential consumption of 3¾ mill. kW. 'The post-war shortage of domestic solid fuel, together with the lack of domestic help, has encouraged a great expansion in the use of electricity for domestic purposes, and here were radiators available in large quantities at bargain prices.' He might have continued—and here, too, were tariffs encouraging the use of current at prices which are not only unremunerative to the industry but are beginning to undercut those of other fuels. 'The biggest nigger in the woodpile is undoubtedly the electric radiator.'

The steps taken or desirable to adapt the limited supply to the excessive and growing demand were outlined. Every consumer, industrial, commercial or domestic, is to have 'one named day of risks each week.' The industrial consumer will have to keep a listener to the B.B.C. on the 1,500 metre wavelength to pick up warnings of impending cuts. 'We in the electricity supply industry loathe the position (which is not of our making). Pre-war we could supply all we could find a market for and *we fought for every kW. Perhaps we fought too well.*'

Details of the proposals by which economies can and must now be made cannot be repeated here. But what are the prospects for the future? The B.E.A. has indicated that a rapid increase to the installation of 1.8 mill. kW per annum is called for. Manufacturers could reach this output of plant at an early date, but the Government has restricted the programme to a maximum of 1.5 mill. kW per annum and more recently perhaps to only 1.4 mill. 'On this basis we shall never catch up with the growing load.' The allocation, for instance, of steel tubes for oil coolers to transformer manufacturers is to be cut by 30%, while large numbers of transformers are exported. And so on. It is indeed a very sad story.

British Standards

JOINTING MATERIALS AND COMPOUNDS

This British Standard is concerned with the material, composition, strength, sizes, general conditions of tests, etc., of compressed asbestos fibre, vulcanised fibre, plain rubber, rubber insertion (reinforced with cotton fabric or with flax fabric) and corrugated metal joint rings. Clauses are included relating to the essential requirements to ensure the soundness, resistance to corrosion and disjointing properties of jointing compounds. The materials and compounds are for use with screwed, flat-faced flanged and flat-seated joints for cold water (up to 300 lb./sq.in.), hot water (up to 50 lb./sq.in. and 100°C), town gas (up to 50 lb./sq.in.) and saturated steam (up to 30 lb./sq.in.).

Copies of this standard (B.S. 1737 : 1951) may be obtained from the British Standards Institution, Sales Department, 24, Victoria Street, London, S.W.1, price 5s., post free.

A revision of British Standard 715 : 1951, 'Sheet Metal Cylindrical Flue Pipes, Fittings and Accessories for Gas-fired Appliances,' has been published. The specification applies to pipes and fittings which have welded or folded seams and finished after fabrication by vitreous enamelling, electro-deposition, galvanising, galvanising and painting, or any other suitable corrosion-resisting and heat-resisting finishes. It includes tables of dimensions of various pipes, bends, joints, and connecting pieces, and appendices on test for quality of painted coatings, method of cutting vitreous enamelled flue pipe, and typical methods of assembly. Copies may be obtained at 4s., post free.

Women's Gas Federation

WORTHING CONFERENCE

ARRANGED by the Worthing branch of the Women's Gas Federation, a conference at the Worthing Town Hall on October 10 was attended by a large number of members of branches in the South of England. Dr. Meta Jackson, President of the Worthing branch, and Mrs. M. Ayliffe, Chairman, received the delegates, who were also welcomed by the Mayor and Mayoress of Worthing (Councillor and Mrs. J. A. Frampton). Among the visitors were Miss O. L. Humphries, Chairman of the National Executive of the Federation, Miss Ellington Wright, M.B.E. (Past Chairman), Miss D. W. Pidsley, Miss M. F. Flack and Miss M. Godby, from headquarters. Dame Vera Laughton Mathews, Adviser to the Gas Council on Women's Affairs, a member of the South Eastern Gas Board and of the Executive Committee of the Federation, presided at the afternoon session.

At the luncheon the speaker was Mr. James Laver, C.B.E., Keeper of Prints and Drawings at the Victoria and Albert Museum, who spoke on 'The Meaning of Fashion.'

Addressing the afternoon meeting, Dame Vera said one of the foremost aims of the Federation was try to raise the standard of cooking in this country. People had an idea that all women knew how to cook by intuition or that such knowledge followed as a matter of course after the marriage ceremony. Cooking, like everything else worth doing, took a great deal of training, experience, and hard work. That was one of the ideas the Federation had in view when promoting the famous Festival Fare national cookery competition. There were some interesting ideas in mind for the future on the same lines, such as an international demonstration on the Continent showing different national styles of cooking by gas.

Miss Humphries said one of the aims of the Federation was to help the housewife not only to be a good cook but also to become a good citizen. A residential conference was being planned to be held at Stratford-on-Avon next year.

A paper on some of the 60 ways in which a cooker is tested in the laboratories of the South Eastern Gas Board was read by Mr. R. Carne, in the absence, through illness, of the Chief Physicist, Mr. G. H. Fuidge, who prepared the paper. Illustrated by lantern slides, the address revealed some of the technical background work in the preparation of the most useful article of all household equipment.

Mrs. Millicent Pleydell Bouverie, for many years a member of the National Executive, spoke on 'Home is Made by Women.' She suggested that it was the right moment for older women to do a little stocktaking to see what could be done to help the younger woman in her task of making a home. She appealed for more spiritual guidance for young people in a world that seemed to be trying to do without it but which, as the lengthening lists of delinquent children alone proved, was impossible.

The afternoon session ended with tea, following a vote of thanks to the speakers, proposed by Miss A. I. Gambier, M.B.E., Vice-President of the Worthing branch.

Twelve Thousand Homes Without Hot Water

When Mr. Stanley Hopkinson, of the South Lancashire Group of the North Western Gas Board, addressed members of the St. Helens branch of the Women's Gas Federation at their fourth birthday celebrations, he said that in St. Helens there were twelve thousand homes that had no hot water supply.

On the question of smoke pollution, Mr. Hopkinson stated that St. Helens was much cleaner than when he first saw it 30 years ago, and he held the view that the gas industry had a great deal to do with the clear sky. For one thing it had made it possible for the great St. Helens glass industry to make use of vast quantities of gas in place of the solid fuel the industry used to burn in the past. The people of St. Helens had also played their part, for the use of gas for domestic purposes was increasing year by year.

A Fine of £25 was imposed at Coventry last week on the West Midlands Gas Board for offences concerning deficiencies of weight in bags of coke. It was stated that 19 out of 20 bags on one lorry were underweight to a total of 165 lb.

The Trade Statistics for August, 1951, issued by the Central Statistics Office in the Republic of Ireland, show imports of 21,708 tons of gas coal, valued at £114,375, as against 6,414 tons, valued at £32,831, in August, 1950. This brings the total of these imports for the first eight months of 1951 to 179,365 tons, valued at £891,437, compared with 147,971 tons, valued at £691,475, in the corresponding period of 1950.

Leatherhead Exhibition

The South Eastern Gas Board took a small stand at an industrial exhibition sponsored by the Leatherhead Chamber of Trade for one week last month. Appliances displayed included a Jackson water boiler for tea making, a gas water heater, a selection of gas injectors for industrial burners, thermostats, sundry valves, a clock controller and a temperature indicator, Controlled Flame gas-fired boiler for steam raising, muffle furnace for the heat treatment of metals, and an overhead Radiant panel heater.

Strip lighting and spot lights were used on the stand and groups of photographs were shown related to the major appliances exhibited, showing actual installations.

Numerous requests for information were received, and the stand was voted the best in the exhibition. The Headmaster of a local senior boys' school wrote to the Board expressing thanks for the interest shown in dealing with the many questions raised by his pupils. The stand, produced by the Board's West Surrey Division, was designed as a three-sided unit, and with slight modification, is to be converted for use as an island site in appropriate showrooms.

BRITISH GAS STAFF ASSOCIATION

Rally of Scottish Staffs

OVER two hundred members of the British Gas Staff Association attended a rally in Glasgow on October 5, at which the speakers were Mr. F. C. Henfrey-Smith, General Secretary, and Mr. A. L. Cockrill, Northern Organiser.

Mr. W. J. Blyth, of Glasgow, who presided paid tribute to Mr. G. L. Reid, the Secretary of the Glasgow Branch, which had organised the rally, and to Mr. J. McConville, the Scottish member of the B.G.S.A. National Council.

Mr. Henfrey-Smith said that, while much technical and organisational progress had been made by the industry since vesting date, he did not consider that adequate steps had yet been taken to foster a community of interest between the boards, the consumers, and the employees. The B.G.S.A. hoped that eventually the nationalised industry would become a partnership between management and employees for the benefit of the community. To that end, the B.G.S.A. advocated that employees should be represented directly on the boards and that incentive schemes should be introduced to create an interest in the efficiency and prosperity of each board.

Mr. Henfrey-Smith reported that, owing to the steep rise in the cost of living, the staff side of the National Joint Council for Gas Staffs had found it necessary to inform the management side that it would shortly be submitting a claim for a substantial increase in all salaries and salary scales.

Mr. A. L. Cockrill (B.G.S.A. Northern Organiser), reviewing his work in Scotland, said that there was discontent among the staffs in the Scottish area due primarily to the manner in which national salary agreements had been implemented by the Board, and secondly to a seeming lack of desire by the Board to consult with the appropriate trade unions before making changes in conditions of service. He hoped, however, that eventually better relations with the Board would be established.

South Western Section Membership Drive

One-Third Increase Reported at First Annual General Meeting

MR. J. H. DYDE, President of the Institution of Gas Engineers, paid a surprise visit to the first annual general meeting of the South Western Section of the Institution at Taunton on October 17. It was his first visit to the Section since its inauguration in September, 1950, in succession to the former Western District of the Southern Association of Gas Engineers and Managers.

Mr. Dyde said the district sections of the Institution afforded a ready-made platform for technicians, technologists, and men of science to discuss freely their problems and ideas. In visiting the district sections throughout the country he had been encouraged everywhere by the way in which they had set about their work, which was simply interpreted in terms of being a local section of the Institution endeavouring at all times to carry out the objects of its charter. He congratulated the Section upon an increase in membership and said that when it became desirable to decentralise the old Southern Association because of its very wide geographical area, it was difficult to decide upon a line of demarcation because of concern about a drop in membership.

With Flying Colours

With the very able guidance of Mr. H. H. Brown (Exeter) they had come through a difficult first year with flying colours. They could look forward to advancement and doing a first class job of work in the South West. He was pleased to note the wide range of the papers presented during the first year's programme. Dr. Arthur Marsden had given a talk on the treatment and disposal of gasworks effluent, a subject which was to be discussed at the autumn research meeting of the Institution in November. He also expressed appreciation of the Section doubling its subscription to the Benevolent Fund from five to ten guineas. The need for increasing the rate of grant was most pressing and they were anxious that everyone should make some contribution.

Mr. Dyde then outlined a number of ways in which the Section could extend the work of the Institution at district level. There was in their District Section an informal atmosphere which presented an opportunity for a junior member to come forward and say exactly what he wanted. This was the one free platform in the industry where he could express his ideas freely on technical, scientific or educational matters. He advocated the continuation of discussions on important papers presented.

Educational Activities

The Advisory Committee of the Gas Council on Education had indicated to the Institution that they would accept their examinations which led to associate membership and the examinations which led to full technical certificates for technologists, engineers, and technicians in the industry. It was hoped to institute a standard examination for gas fitters on a national basis so that the fitter who qualified in the South West would have attained the same standard as the fitter who qualified in the London area.

Referring to training for management, Mr. Dyde said there was a suggestion that the Institution should give more attention to this, but it was a very difficult matter for any professional institution to deal with. His own view was that management and responsibility for management could only be afforded by the particular organisation for which the young engineer was working. Unless that organisation gave him opportunity for management and enhanced responsibilities and analysed his reactions, there was little which could be done from an academic point of view. At a higher level there were colleges specialising in industrial management.

Mr. Dyde concluded by commenting on an assurance from Mr. Brown that the Chairman of the South Western Gas Board—the meeting was held at the Taunton offices of the Board—was desirous that opportunities should be given to members to attend conferences of the Institution. 'I have found the same sort of awareness by those in authority on the administrative side,' he said. 'They are beginning to recognise a real need for this platform for debate and mutual help.'

A New Approach

Mr. H. H. Brown, the retiring Chairman, warmly welcomed Mr. Dyde and Dr. W. T. K. Braunholtz, Secretary of the Institution, before reviewing the year's work. He said that the Section's predecessor had been the weaker part of an entity which had a somewhat nebulous association with the Institution of Gas Engineers and was mainly concerned with the bringing together of a number of gas engineers and managers, some of whom were corporate members of the Institution and some not.

The subjects discussed were mainly of a managerial or commercial nature and he thought it would be fair to say that, apart from works visits, very little opportunity was offered to improve the knowledge, status, or usefulness of gas engineers. He was speaking of the Western District. The parent body and the Eastern District had an entirely different function, and there had been in the South West, therefore, a more severe change in constitution. An entirely new approach to the duties of individual members was now required and being a part of the Institution not only offered valuable opportunities but implied a real need to develop and take advantage of those opportunities.

The future success of the Section would depend on its ability to make a serious contribution to the growth of knowledge of gas engineering in all its branches. An immediate problem was to enlarge the Section's membership to include all the chartered gas engineers residing in the district in the shortest possible time and to persuade an increasing number to take a really active interest. The centre of gravity of the active membership was located too much to the South and considerable growth was needed to ensure a shift to the North East.

Balanced Outlook

It was only by including engineers engaged in the larger units of the district that the Section could reach a well-balanced outlook to consider problems of the future, most of which would be associated with larger units of production and more intricate and capacious distribution systems. Part of the function of the Section would be to take a greater interest in the education of the engineers of the future, and although it was the proper province of the various gas boards to prepare training schemes, it was hoped that the individual members of district sections would be charged with the responsibility to ensure that the schemes were sound; that the pressing need to attract suitable men was met; and that those men had a comprehensive education.

Membership in the year increased by about one-third. He was far from satisfied and thought the membership should have doubled. The fault perhaps lay in a lack of personal approach to those chartered gas engineers who were not members but who resided and practised in the district. Mr. Brown made a strong appeal for more support for the Institution Benevolent Fund. It did not stand very much to the credit of their profession that the fund had so restricted an income.

Mr. J. H. Lowther (Barnstaple), the new Chairman, on behalf of the Section presented Mr. Brown with a hand-painted tea service executed by Devon craftsmen in recognition of his services. Mr. Lowther said they were indebted to him for the amount of work he had put in in the initial year of the South Western Section. He had blazed a trail and his successors would reap the benefit.

Interest Maintained

Mr. Brown, replying, said the first year had been full of interest. He acknowledged indebtedness to the Management Committee for their support and especially to members who had contributed papers for discussion or made their works available for inspection.

Congratulating Mr. Chas R. Ingham (Bristol) on his election as Junior Vice

Concluded at foot of p. 222

CONSULTATIVE COUNCILS IN SESSION

Gas Developments in Scotland

£340,000 to be Spent in Next Three Years

THE Scottish Gas Consultative Council at its meeting at Edinburgh on October 17, presided over by Mr. A. T. Morrison (Aberdeen), welcomed schemes approved by the Scottish Gas Board in the past three months involving an expenditure of more than £340,000 in the next three years on new plant and mains.

The largest sum, £72,000, is to be expended in the Perth district on the installation of new purifiers, valves, etc. (£45,510), inlet and outlet connections (£5,280), insulation (£4,280), elevators and conveyor (£2,650), and foundations (£5,750), and allowing £6,500 for contingencies.

Of £47,834 to be spent in the Edinburgh district, the largest individual sum, £22,178, will go in respect of mains in housing schemes. In addition, a further £8,980 will be spent on mains for Drylaw housing scheme and £3,500 on mains replacements in Tranent area. A 12 in. feeder main of medium pressure and a twin 9 in. governor installation is to be carried out for Clermiston housing scheme at a cost of £8,775, and £4,401 has been set aside for the reconditioning of showrooms at Morningside and Newington.

In Kirkintilloch district a total of £55,000 is to be spent on the reconstruction of six beds of stop-end retorts to three beds of 20 in. through retorts, coal handling and stoking machinery, coal tippler, conveyor, and other works. The £31,650 to be spent in the Glasgow district will go exclusively on the provision of new mains. This includes a 24 in. feeder main to the Tollcross works of Stewarts & Lloyds, Ltd., at a cost of £15,000, although the actual cost of this work is £50,000, the firm having agreed to contribute the major portion of £35,000. The new main will provide for future extension to other consumers and will assist the general supply in the area. A new 12 in. main from the existing 18 in. main is to be provided at Thornliebank industrial estate. Other new mains are to be laid in respect of housing developments at Toryglen and Thornliebank schemes.

Piled foundations for a 3 mill. cu.ft. gasholder at Tullos, Aberdeen, will cost £24,842, plus £2,350 for contingencies.

A total of £21,381 is to be spent in the Fife group—all on mains, except for £9,500 on the first stage of a new trunk main and provision of governor house and governors in Buckhaven and Leven districts. Mains are to be laid in Kelly/Lochgelly, Kennoway, Anstruther, and Buckhaven and Leven districts.

Of the total of £19,990 to be expended in South East Scotland division, £10,000 will go for the reconstruction of carbonising plant, and extension of retort house in North Berwick district. Approximately 1,200 yds. of 8 in. main is to be laid to provide additional supply to the I.C.I. factory at Grangemouth, where the present consumption of 3,000 cu.ft. per hour is expected to be increased to 6,500 cu.ft. Pressure equipment on existing producers is also to be provided in this district to improve heating of the vertical retort setting. Mains for new housing schemes are to be laid at Denny and Linlithgow district.

A new governor house to be provided at Selkirk will cost £1,288, and a further £1,930 will be spent on new housing mains in Grangemouth district. An existing governor at Armadale is to be re-sited and the trunk main enlarged at a cost of £1,143, while mains, etc., for new houses in the same district will cost £1,884.

Mains extensions, to be of sufficient size to provide for further development at Bannockburn, Stirling, are to cost £3,250. In Stromness district the extension of the carbonising plant by the installation of one setting of four 99 in. and 16 in. retorts with an arch capable of accommodating six retorts will cost £4,000. Existing plant in this district is of inefficient design and the existing setting of four retorts is in bad condition.

In the Renfrewshire group, £2,584 is to be spent on painting the waterless gasholder at Paisley, and £3,133 on the provision and laying of mains for new houses at Barrhead. A two-lift spiral-guided gasholder, with a capacity of 100,000 cu.ft. is to be erected at Auchinleck at a cost of £12,645. Purifiers are to be extended at Dumfries in connection with the proposals for development of manufacturing capacity there at a cost of £9,614, and at Cumnock No. 1 bed retorts are to be converted from six to eight at a cost of £1,217.

An allegation that a representative of the Gas Board persuaded people at Dundee to sell their own gas cookers on the understanding that the Board would supply them with new ones on hire is to be inquired into by the Council. The matter was brought before the Council by Mr. Colin Baird, Dundee, who said that a representative of the Gas Board had been going round Dundee advising people to get rid of their cookers and assuring them that the Board would supply new ones.

An official stated that the area manager in Dundee had denied that his staff had been doing anything of this kind. Mr. Baird said he knew for a fact that the thing had occurred. He knew of two ladies, each of whom had sold her cooker and got another put in. The Chairman said that there was something very wrong in such a procedure, and something should be done about it. He asked Mr. Baird to send to the Secretary particulars concerning the people involved.

North Eastern Tariff Proposal Sent Back

At a meeting of the North Eastern Gas Consultative Council at Leeds on October 22 the North Eastern Gas Board was asked to reconsider its proposals for a standard tariff which would divide its area of supply into three zones in favour of a single tariff which would operate throughout the whole of the Board's area.

Mr. S. Wade (Leeds) moved the following resolution: 'That the Consultative Council takes the view that the tariff proposals submitted to the Council by the Board represent a defect in the Board's plans and arrangements in so far as they propose the introduction of a three-zone tariff. The Council therefore requests that the Board should reconsider the proposed tariff with a view to the introduction of a single tariff for the whole of the Board's area.'

Alderman J. H. Whittaker (Todmorden), seconding the resolution, said that he did not think it was right to base a tariff on the proximity of consumers to a coal field. There should be only one zone and one price for all consumers.

Alderman J. H. Sutcliffe, another member, said the new tariff would give the Board 10% more income. It would be the third increase in the price of gas since vesting day and result in an increase of 30% on the charges of two and a half years ago. In some cases, particularly Bradford, it would mean that the charges were up by 50%.

Mr. Wade's proposition was carried by 10 votes to nine.

Mr. R. N. Quirk, Under-Secretary, Gas Division, Ministry of Fuel and Power, paid an informal visit while the Council was in session. It was stated that his visit was one of a number with a view to seeing how the Councils worked.

Sir Andrew Clow, Chairman of the Scottish Gas Board, discussed the work of the Women's Gas Federation with Miss O. L. Humphries, Chairman of the National Executive, when she visited Scotland to present the cup which was awarded to the Greenock branch for the greatest number of new members joining the branch during the last 12 months. While in Scotland, Miss Humphries took the opportunity of contacting as many divisional, group, and district managers as possible, in the short time at her disposal, to interest them in the work of the Federation.

Requirements for

A NATIONAL FUEL POLICY

Sir Ewart Smith's Address to the Combustion Engineering Conference

PRESIDING at the final session of the fuel and power conference of the Combustion Engineering Association on October 10, Sir Ewart Smith said there was a tremendous need for some clear but broad overall policy in the fuel and power field. That policy, if and when it was worked out, must be objective, it must be balanced, and it must be—or should be—worked out with no bias of any kind, political or sectional, but should be based on the facts of what was best for the country's economy as a whole.

Such a policy should be worked out as a result of an analysis of four aspects, summed up in four questions:

(1) What are the requirements to be met, not only at present but as estimated for the future ?

(2) What is the relative importance in the national interest of those requirements ?

(3) What resources are or can be made available to meet the requirements ?

(4) What action is required to balance supply and demand with the least strain on the economy ?

The Ridley Committee had been set up, but its terms of reference covered only the use and did not specifically cover the production. Faced as we were with difficulties of supply, with excessive demand over supply, we should not get any really sound and worthwhile answer to our problems unless production on the one side and use on the other were considered together and dealt with as an integral problem.

Long and Short Term

Any national fuel policy must have regard to both the long and the short term problem. It must pay proper regard to trends, with long term trends based on the past to some extent but estimated in regard to the present and the probable conditions for the future. It must have regard to present difficulties, but it must not try to solve those while being neglectful of the even graver long term problems which might even be made worse by any hurried and *ad hoc* solution of present difficulties.

There must be recognition that the problems, though deepseated and long term, were in their details constantly changing. The sort of policy he envisaged must be subject to constant revision; by that he did not mean that it should be completely different each year, but each year it should be looked at and amended in the light of changing circumstances. It was only in that manner that we should be able to do away with perpetually recurrent crises. There was great need to remind everybody that these problems were strictly technical as well as economic.

We had to recognise that any healthy economy was an expanding economy, and natural growth and expansion, if it was healthy, was growth at compound interest rates. That was a point of view that was often neglected. That was why he thought the National Coal Board's 15-year plan, which aimed at getting 240 mill. tons in 1965, was aiming too low. It did not take into account sufficiently what this country ought to be able to achieve in progress in its standard of life and in its industrial efficiency in that period. The growth that the Board suggested in fact amounted to 0.9% per annum, leaving out compound interest. The sort of rate of growth he would like to have would certainly be not less than 3%, which would still leave us far behind some of our main competitors.

Chief Source of Fuel and Power

Coal must remain our chief source of fuel and power over any measurable number of years. We might get some help from inland hydro-electric schemes, from tidal power, from wind possibly, from atomic energy (though he thought that was a long way off) and from oil; the new refineries would have considerable quantities of residual fuel oil, but even so they would be small in comparison with our coal, and we in our island economy certainly could not afford to count on them, as we might be cut off from supplies (we had had a case of that quite recently) and in any case if we brought in that oil it had to be paid for by exports, which had to come from our industries and which somehow had to come from our resources of fuel and power.

In this business of getting a policy for action, it was not only industry and the domestic consumers, but it was the Government of the day which had a tremendous responsibility, not only in formulating the policy but particularly in carrying it out, because it was the Government which was responsible in a large measure for providing the climate of industry and of consumption, the climate of incentives, in the widest sense, which would lead people to do the right thing in accordance with the policy—incentives rather than last-minute compulsion with all the upsets that came from such action. It was completely fantastic that electricity today should be sold on the two-part tariff to the domestic consumer in London cheaper than it was sold to big power users in the same city. It was completely out of accord with any true system of costing and it was completely harmful in its effects.

Finally, the plan must have regard to ancillary industries, particularly transport, which was almost an integral part of the whole fuel and power field in the transport of coal from the point of production to the point of use. The plan should consider whether the time had not come, as a matter of policy, when we in this country ought to have large-size heavy mineral wagons fitted with vacuum brakes which could run at high speed as complete trains between the main points of production and consumption, with great economy in loading and discharging and with a consequent speeding up of the whole traffic problem.

In 1950, the main uses of coal were:
Gas, 26 mill. tons.
Electricity, 33 mill. tons.
Coke ovens, 22 mill. tons.
Railways, 14.5 mill. tons.
Collieries, 11 mill. tons.
Domestic and miners' coal together, 37.5 mill. tons.
Manufacturing industry (the whole of productive industry), 44.5 mill. tons.
Miscellaneous (including bunkers, etc.), 12.5 mill. tons.

These made a total inland consumption of 201.5 mill. tons, with exports of nearly 17 mill. tons. In the January-June period of this year we found that gas went up by nearly 750,000 tons over last year, electricity by 2 mill. tons, domestic by just under 500,000 tons and manufacturing industry by 1 mill. tons—a total increase, taking all other minor ones into account, of 4.5 mill. tons. We cut down our exports in those six months by 5 mill. tons, and we imported 1.25 mill. tons. The gas and electricity increase at nearly 2.75 mill. tons was from two to three times the increase in the consumption in productive manufacturing industry. It was productive manufacturing industry on which this country had to depend for its very life, for its food. The policy he advocated must take account of that fact and see that if there had to be reductions in consumption, they must not all fall on that vital sector.

Spur of the Last War

One reason why our coal situation was not much worse than it was today was that under the spur of events during and just after the war, when coal became scarce and more expensive, manufacturing industry itself made a lot of improvements, and the Ministry of Fuel and Power was to be congratulated on the help which it gave in that movement through its Fuel Economy Section. One reason why the industrial demand was now so obviously rising was that in large measure the cream had been taken off those savings, certainly in many of the larger industries, and we were getting down to the smaller savings, the hard core of savings.

On some fronts there were potential savings, particularly in regard to the open domestic fire. He would like to feel confident that all domestic fires now being installed in the new housing schemes or in rehabilitated houses were of the latest and most up-to-date type, because the modern domestic grate had an efficiency of something like double or

treble that of the orthodox, old-fashioned grates.

The power problem fell into two parts. It had a direct and very significant influence on the requirements of coal and it was having a tremendous effect on our economy by occupying a large proportion of our vitally hard-pressed engineering industry. The power front this year was spending something of the order of £130 mill. If one took that in rolled-up manpower in the mines, the steelworks, the engineering works, and the erecting industry, and if one allowed a round figure of £500 per man per year, it meant that we were employing something like a quarter of a million people in those vital industries to put up our extra generating stations.

If all that electricity were being used for the purposes for which it was fundamentally efficient none would mind; but in fact this ever-growing demand for more power plant sprang primarily from the day peak load, and that in turn sprang primarily from the domestic load. The power was being used primarily for space heating, for water heating, and in some cases for cooking where there was gas as a potential alternative. Where electric power was used for heating, four-fifths of the heat of the coal was thrown away at the power station.

Cost of Generation

It cost today approximately £100 per kW in generating plant and distribution system for every kW-year distributed. The modern council type of house when it was on the electrical system normally had somthing like 12 or 14 kW total capacity installed. Under peak winter conditions only half of that was used. When one took in the diversified load of different houses in the district or in the country that peak demand was only 4 or 5 kW. We had been building roughly 200,000 new houses a year, most of which had been put on the electrical system. We had been busy in the post-war years converting private houses, hotels and commercial premises to electric space heating and water heating, and it would not be excessive to assess those at the equivalent of another 100,000 houses. That meant that for all electric purposes in those houses there was roughly an additional load of four times 300,000 coming on at the peak. If one discounted it again and said that for space and water heating it was only 3 kW there was still a load of the order of 1 mill. kW additional which all came at the peak.

We had the resources in this country to give us all we wanted. We had coal reserves for as long ahead as we could see or think about at the present time. It was up to each one individually to see that we used those resources efficiently.

We must have a policy for increased production, particularly of coal. We must by every possible means improve the efficiency of conversion of coal to electric power or to steam. We had to improve the efficiency of use of the steam, the electric power or the coal, whether it was in domestic or industrial premises. We had to reduce under the present stringency the use for less essential purposes. We must guide these trends by the wise use of administrative and financial action on the part of all concerned.

Controlling Gas Records

As a result of consultations with a number of area boards and considerable research within the gas industry a new method of controlling gas records has been designed by The Shannon, Ltd., New Malden. The method is based on visible records which operate as part of the widely-known Shannoleaf system, as illustrated in Fig. 1.

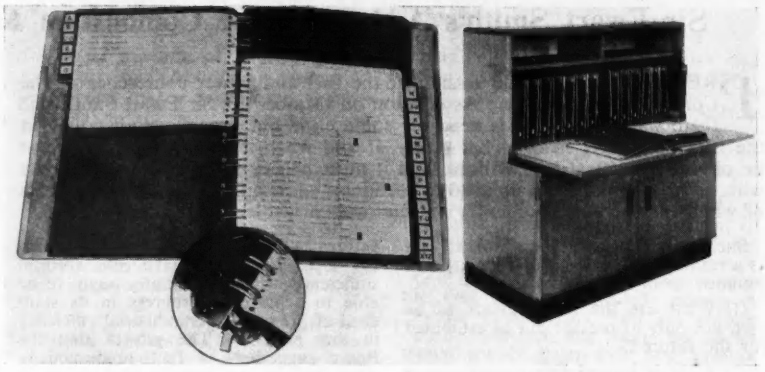

Fig. 1 (left) shows a typical Shannoleaf binder holding upwards of 700 records, each readily visible. Fig. 2 (right) is one of the bureaux specially designed to facilitate the keeping of up to 12,000 records by an individual member of the staff.

Mr. H. C. Myers, Chief Research Officer to the manufacturers, explains that the Shannoleaf records are housed in a light, compact, streamlined binder holding upwards of 700 records. Each is readily visible to the eye—so that referring to or entering on any record is a speedy matter. Some 12,000 of such records indeed can be kept and controlled by an individual clerk. There are bureaux specially designed to facilitate this (Fig. 2).

A simple lever permits space to be created for the insertion of a new record at any given point—and conversely to close up space made by the removal of redundant records.

But the features which will interest gas staffs in particular are the actual visible records themselves. Among these are records of the following type:

Appliance maintenance record; Appliance order record; Case and container records; Coke delivery and allocation record; Consumer's record (prepayment); Fuel consumer's ledger; Hire purchase; Invoice analysis; Maintenance ledger; Material costs analysis; Order records; Personnel; Plant maintenance costs; Plant maintenance; Project history; Residuals debtors' ledgers; Stores and stock records; and Wages analysis.

To demonstrate the value of such records Mr. Myers has shown us one which reveals the wide range of information of important data on the visible edge. A variety of signals permit the widest possible use of this edge for conveying visual information at a glance.

The makers will shortly be marketing an accessory which permits double and triple entries to be made in such a way as to eliminate two-thirds of the clerical work and expense—and, of course, the margin of error. Readers will realise the potentialities of this method for 'marrying' together customer records with statements *and* journal or day book entries, wages record with pay slip and pay roll, stock records with checking sheet, hire purchase records with receipts and journal, and so on.

Details and examples of any such records can be obtained from The Shannon, Ltd., New Malden, Surrey.

Exhibitions in Scotland

The Directors of the Scottish Building Centre, 425/7, Sauchiehall Street, Glasgow, have decided to reserve the main part of their first floor space permanently for the holding of exhibitions of interest to the Scottish building community. Approximately 1,000 sq. ft. of space, capable of seating 160 persons, has been made available for exhibition purposes, and it is hoped to give showings of many technical exhibitions, not only of Scottish interest, but to the entire building industry.

'The Scottish building industry has been at a disadvantage in the past in not being able to see more of the valuable technical exhibitions widely available to architects and builders in the south,' states Mr. Campbell, Deputy Director of the Scottish Building Centre. 'The average Scottish builder is a busy man, and though he is keen to keep abreast of latest developments in the industry, can seldom afford time to travel south specially for such occasions. We now intend to bring many of these exhibitions north, and hope they will take full advantage of the facilities we have provided nearer home.'

A Birkenhead Woman about to go on holiday made a request to the North Western Gas Board to empty her slot meter because there was a considerable amount of money in it, and she did not wish to leave it in the house while she was away. The meter was accordingly emptied, but the Board made a charge of 2s. for the service. She entered a vigorous protest, and the Consultative Council has condemned the charge and has recommended that in such cases no charge should be made.

A Plea for Top Priority

British Electricity Authority's Third Report

THE third report of the British Electricity Authority covering the year ended March 31, 1951, is a record of the strides made in the 12 months in the erection and bringing into operation of generating plant. During the period under review there was an increase of over 13% in units generated compared with the previous year. But the Authority is convinced that the planned rates of new plant capacity will be impossible of achievement unless a top priority is given to the manufacture of power station plant and equipment and to power station construction.

We extract from the report outstanding facts and figures which give a sharp picture of the size of the electricity industry in this country and its rapid development during recent years. Over 55,500 mill. units of electricity were generated at the power stations owned by the Authority. This was 13.1% more than in the previous year, a third more than was generated by the electricity supply industry in 1947-48, the year before nationalisation, and well above double the amount generated in 1938-39. There are now over 13 mill. consumers —450,000 more than at March 31, 1950, 1,360,000 more than at vesting day, and over 3 mill. more than in 1939.

Sales to consumers exceeded 46,500 mill. units.* This was 12.3% more than in the previous year and more than double the sales in 1938-39. Half the sales were to industry, a third to domestic consumers, and an eighth to commercial consumers. Industrial consumption was 11.8% more than in the previous year, domestic 12% more, commercial 16.7% more. Table 1 sets out the numbers of consumers according to category and Table II shows the number of units sold to the various groups of consumers.

TABLE 1.—NUMBERS OF ELECTRICITY CONSUMERS

Types of Consumer	Numbers of Consumers at March 31, 1950	Numbers of Consumers at March 31, 1951	Percentage Increase during Year
Industrial	177,337	181,086	2·1
Commercial	1,228,390	1,266,705	3·1
Farm	100,029	109,962	9·9
Domestic	11,120,744	11,517,809	3·6
Traction	79	79	—
Public lighting	3,494	3,832	9·7
Totals	12,630,073	13,079,473	3·6

TABLE II.—ELECTRICITY SOLD TO CONSUMERS

Types of Consumer	Millions of Units			Percentage Increase (+) or Decrease (−) of 1950-51 on	
	1947-48	1949-50	1950-51	1947-48	1949-50
Industrial	17,573	20,784	23,246	+ 32·3	+ 11·8
Commercial	3,840	5,071	5,917	+ 54·1	+ 16·7
Farm	248	374	480	+ 93·5	+ 28·3
Domestic	12,305	13,458	15,076	+ 22·5	+ 12·0
Traction :					
Rail	767	885	921	+ 20·1	+ 4·1
Street	577	546	524	− 9·2	− 4·0
Public lighting	189	360	416	+119·6	+ 15·3
Totals	35,499	41,478	46,580	+ 31·2	+ 12·3

Compared with 1947-48 industrial sales showed an increase of 32% (expansion in industrial production, measured by Board of Trade index, 24%). Commercial consumers, with an increase of 54%, included shops, offices, hospitals, schools, hotels, etc. The increase of 94% in farm consumption in part reflects the progress made since 1947-48 by area boards in extending their rural distribution systems. The number of farms connected during the year (see Table III) was the highest annual increase yet recorded.

TABLE III.—NUMBER OF FARMS CONNECTED

	1949-50	1950-51
Total at beginning of year ...	90,485	100,029
Total connected during year	9,544	9,933
Total at end of year ...	100,029	109,962

Prices Charged, 1950-51

The average price received for electricity was 1.181d. per unit. This was 1.6% below the 1949-50 average. It was 'certainly very much less than the price increases which the Authority and the area boards had to pay for coal, machinery, etc'. For electricity sold to domestic, commercial, and small power consumers, the 1950-51 average price of 1.463d. per unit was 8.3% below the pre-war average.

Overall thermal efficiency of generation, it is stated, continues to rise. The figure for 1950-51 is 21.54%. It is added that the improvement would have been greater if the rate of installation of new plant had kept pace with the growth of demand, for the shortage of plant in recent years has necessitated the increased loading of plant of relatively low efficiency.

The Authority continued to be the largest individual purchaser of coal in Great Britain. It consumed in power stations in 1950-51 some 32½ mill. tons of coal, and also 850,000 tons of coke and 80,000 tons of oil. The average delivered cost of British coal to the power stations was 13,6% higher in March, 1951, than in April, 1950. The national coal shortage which developed in the winter of 1950-51 necessitated emergency arrangements to maintain supplies to the power stations, including the distribution, from January to March, 1951, of over 500,000 tons of American coal.

Plant Capacity Exceeded

Once again we see the outstripping by increase in demand of the increase in plant capacity. 'Load shedding by voltage reduction in disconnection of supply exceeded that of the previous year. Load shedding was necessary, and continues to be necessary, because of the shortage of generating plant. Plant shortage is the direct result of the war and of the post-war economic conditions (including the need for increased exports) which have restricted the amount of plant which manufacturers are able to make for the electricity supply industry, coupled with the very large increase in the demand for electricty since the war . . . . It will take several years to effect a substantial reduction in load shedding. And even if the use of load-controlling devices to reduce peak loads were to accord to industry an appreciable relief from load shedding, it could not materially affect the urgent need for the planned ratio of load capacity—unless drastic and indefinitely prolonged restrictions were imposed on those consumers whose supplies were subject to control. The Authority expresses concern about the Government's decision, in apportioning national capital investment, that the annual amounts of new generating plant should not rise beyond 1,500,000 kW (sent out), compared with the Authority's aim of 1,800,000 kW. 'With full employment,' the report argues, 'increases in production can only come from better supplies of materials and improved efficiency, and there is abundant evidence that the much greater industrial output per man-hour in the U.S.A. than in this country is due in large measure to the much larger amount of power—two to three times as much—available per employee in the U.S.A. Even in the present difficult economic conditions, and whatever the expedients that may have to be adopted to relieve industry from the worst effects of load shedding, it is in the best national interest to make sure that the generating plant programmes are carried out as planned.'

Control of Consumers' Loads

The report states that all practicable means of controlling consumers' loads to mitigate the effect of peak loads have been examined, including particularly the control of the excess peak loads in severe cold weather. Extended use of electric space heating appliances has made the morning peak predominant.' Following the recommendations of the

* The difference between the number of units generated and the number sold to consumers is broadly accounted for by the energy used in the power stations and absorbed in transmission and distribution.

Clow Committee, a higher unit charge in domestic tariffs in the winter months (with a corresponding rebate later) was imposed in the winter of 1948-49. Subsequently, after consideration of the public reaction to the surcharge, the Ministry of Fuel and Power decided not ask the area boards to continue the surcharge in the following winter. The Minister requested the Authority, however, to investigate the remaining recommendations of the Clow Committee, and, in particular, the effect of mechanical devices in controlling domestic demand. The report contends that 'only actual experience of load control would show the extent of peak load reduction with sufficient accuracy to influence the plant programmes. Until that experience has been gained, and so long as plant capacity is inadequate to meet the demand, the principal effect of load-controlling devices would be to substitute disconnection of the load so controlled for corresponding amounts of load shedding.'

The report maintains that, due to the diversity factor, cooking makes only a relatively small contribution to the morning and late afternoon peaks. The load is unsuitable for control by disconnection. Load control of water-heating immersion heaters is technically promising, but more extensive application of control could make only a minor contribution to peak load economy at the present time. Control of the space heating load, if practicable, offers the possibility of far more substantial reduction at peak times than does the control of any other type of load. But a tariff incentive reasonably related to the costs of supply is unlikely to be sufficient to offset the value to the consumer of the emergency use of electric space heating in abnormally cold weather. 'The long term solution of the space heating problem lies in improved standards of building construction and insulation, improvements in the insulation of existing buildings, and the provision of thermal-storage heating appliances suitable for domestic, commercial, and industrial structures.'

The report (H.M. Stationery Office, 8s.) includes the accounts of the Authority. The combined revenues of the Authority and the area boards exceeded by £6,327,177 the amount of their combined outgoings chargeable to revenue account. This surplus, together with the surpluses for 1948-49 and 1949-50, give a total of £17,882,097 for the three years since vesting day.

GAS SUPPLY FOR BASILDON NEW TOWN

Preparing for 20,000 New Houses

THE design of the gas distribution system for the new town of Basildon, Essex, was described by Mr. C. D. Shann, Joint Assistant Distributing Engineer, North Thames Gas Board, in a paper on 'Gas Distribution Engineering' which he read at a meeting of the Junior Institution of Engineers on October 12.

The new town, he said, is planned to cover an area about 5½ miles by 2½ miles south of the Southend arterial road and extending from Laindon in the west to Pitsea in the south east. About 20,000 houses or flats will be erected and there will be two large industrial estates to provide local employment. From the master plan prepared by the Basildon Development Corporation a map was produced showing the proposed major roads and the areas to be developed for domestic and industrial buildings respectively.

The external source of gas supply to the new town is from an 18 in. medium pressure main recently laid along the arterial road to connect the Southend works to Beckton, and to feed Brentwood, Basildon, and Rayleigh en route. A new holder station at the north east corner of the town is to be connected to this main, and it was decided that the central and eastern part of the town should be supplied from this holder station, and that the western part should be supplied through two district governors on another branch from the 18 in. main. Routes for the trunk mains were then selected from these two sources of supply to pass through the areas of building development. The peak demand of each area of domestic building was estimated and provisionally allocated to the most appropriate trunk main route from which it could be supplied.

Three schemes of trunk mains were considered. In scheme (a) the supply from the holder station was entirely at low pressure. In schemes (b)(1) and (b)(2) medium pressure mains were provided from the holder station to feed into the low pressure system through four district governors. Calculations were then made to determine the most suitable size of main to lay in each part of each route bearing in mind the permissible pressure loss. This proved to be the major part of the work for the size of each section of main had to be adjusted to the flow in each section until the pressure loss in each loop of the network balanced, which entailed a large number of flow calculations.

Two special provisions had to be taken into account when calculating the size of mains. The first was that although the mains were in general designed to supply the domestic peak load, certain of them had also to be designed to carry the industrial peak load. Fortunately they did not coincide, for the former occurs at midday on Sunday and the latter on Monday morning. The second was that there should be a link between the area normally supplied from the holder station and that normally supplied direct from the 18 in. main of sufficient size that the whole town could be supplied from either source in case of emergency.

A summary of the trunk mains required for the supply of the whole town is shown in the accompanying table, the lengths being sub-divided into three periods corresponding to the development of the town and also sub-divided according to the requirements of the three schemes of supply from the holder station.

Both of the medium pressure schemes would require the installation of pumping plant at the holder station, but for scheme (b)(1) this would not have to be installed until about 1957, while for scheme (b)(2) it would be deferred until possibly 1965. The relative costs were estimated to be:

	Capital	Annual Charges
Scheme (a)	1.06	0.95
Scheme (b)(1)	0.95	0.97
Scheme (b)(2) (adopted)	1	1

Although Scheme (a) showed the lowest annual charge for the complete system, because no pumping was necessary, it involved higher capital outlay, particularly in the early stages. Moreover both medium pressure schemes provided greater flexibility to meet higher consumptions than allowed for in the calculations. This applied particularly to scheme (b)(2) where the calculated initial pressure was only 15 in. W.G. as compared with 30 in. W.G. for Scheme (b)(1). Scheme (b)(2) was therefore adopted. Most of the mains in the domestic estate roads will be of 4 in. diameter, though there will also be 8 in. and 6 in. mains to distribute the gas to these from the trunk mains.

BASILDON NEW TOWN—TRUNK MAINS REQUIRED

Period	Houses to be erected by end of period	Size of mains In. Dia.	Length of mains, yards Scheme (*a*)	Scheme (*b*) (1)	Scheme (*b*) (2)
1951-55	6,000	30	2,500	—	—
		24	5,000	2,500	4,500
		18	6,000	5,000	3,000
		15	—	4,000	4,000
		12	—	2,500	2,500
		8	—	3,500	3,500
		Governors	One 24 in.	Two 18 in.	Two 18 in.
1956-60	10,000	24	1,800	—	—
		18	3,200	3,200	6,100
		15	2,300	—	—
		12	2,200	7,400	4,500
		Governors	One 18 in.	One 18 in.	One 18 in.
				One 12 in.	One 12 in.
1961-75	20,000	18	7,300	4,000	4,000
		15	1,800	3,200	3,200
		12	4,700	6,700	6,700
		8	1,000	1,000	1,000
		Governors	One 12 in.	Two 12 in.	Two 12 in.

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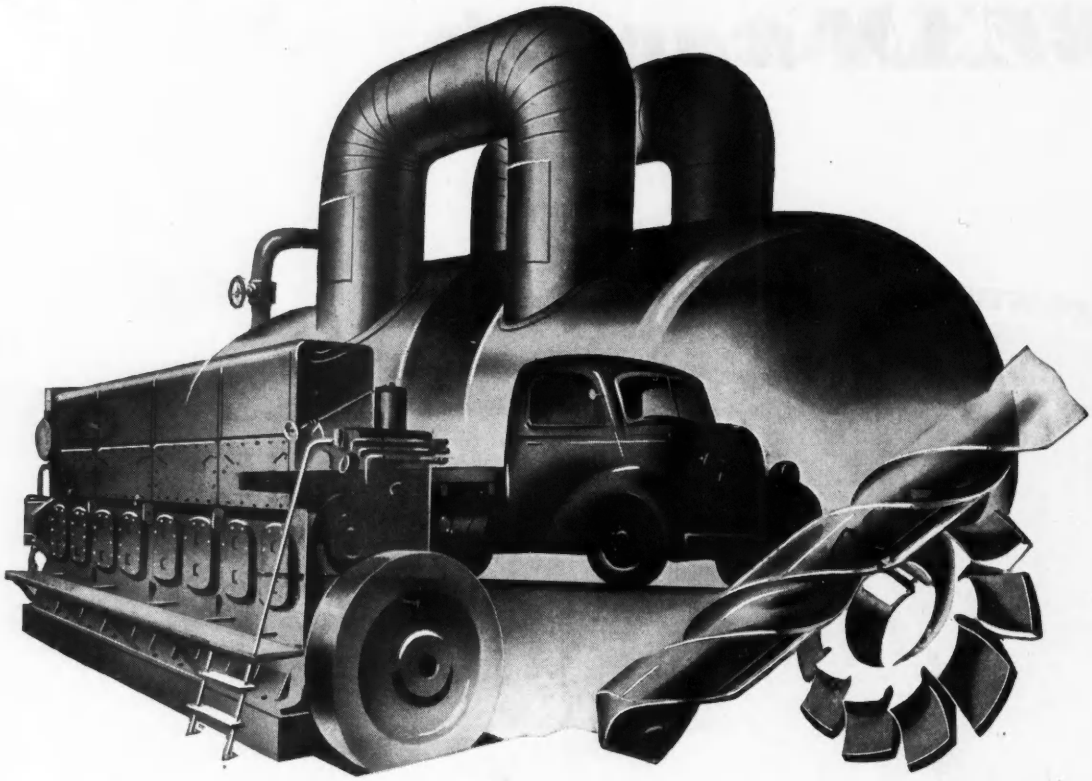

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Results of 1951 Examinations

BELOW is the list of candidates who were successful in the 1951 examinations in Gas Engineering (Manufacture and Supply) held under the Education Regulations of the Institution. The list includes also candidates who passed the main subject examinations in previous years and have now qualified for certificates by completing ancillary subjects.

EXTERNAL CANDIDATES (81)

Diploma in Gas Engineering (Manufacture) (6)

Class	Name	Town
First	Cookson, G. C., B.Sc.	Birmingham
Second	Abraham, H. G.	Birmingham
,,	Hartill, I. J.	Stretford
,,	Johnston, W. M.	Aberdeen
,,	Maunder, D. J.	Torquay
,,	Rees, W. D.	Port Talbot

Higher Grade Certificate in Gas Engineering (Manufacture) (13)

Class	Name	Town
Second	Beattie, W. S.	Belfast
,,	Belshaw, S.	Warrington
,,	Earle, N. G.	Cheltenham
,,	Freeth, P. F. G.	Southampton
,,	Hambridge, A. L.	Stockton-on-Tees
,,	Joy, W. K.	Southsea
,,	Kerr, J. S.	Carshalton
,,	Leake, G. F.	Cromer
,,	Lord, D.	Kirkwall
,,	Robinson, W.	Blackpool
,,	Sedgwick, L.	Billingham
,,	Whitaker, D. W.	Nottingham
,,	Whitehead. I. J.	Haywards Heath

Ordinary Grade Certificate in Gas Engineering (Manufacture) (13)

Class	Name	Town
Second	Anderson, R. S. S.	Londonderry
,,	Baker, D. W.	Weston-super-Mare
,,	Charlton, R.	Grimsby
,,	Clements, J. H.	Bristol
,,	Craddock, J. V.	Stoke-on-Trent
,,	Griffin, A. R.	St. Helens
,,	MacCabe, P. T.	Codsall
,,	McCrae, S. R.	Aberdeen
,,	Mathery, K.	Wakefield
,,	Philps, D. E.	Kingskerswell
,,	Price, R. A.	Barnstaple
,,	Taylor, B. G. S.	Brixham
,,	Ward, R. L.	Weston-super-Mare

Ordinary Grade (Single Subject) Gas Engineering (Manufacture) to qualify to sit for the Diploma in Gas Engineering (Supply) (2)

Class	Name	Town
First	*Hammond D. H. P.	Exeter
,,	Mason, G. W.	St. Ives Hunts.

* Denotes First Class pass with Distinction in the Main Subject Examination.

Diploma in Gas Engineering (Supply) (3)

Class	Name	Town
First	Mason, A. D.	Cardiff
Second	Partington, C. G.	Norwich
,,	Saggers, R. F. E.	Cheshunt

Higher Grade Certificate in Gas Engineering (Supply) (14)

Class	Name	Town
First	Sullivan, K.	Liverpool
Second	Astbury, C. P.	Solihull
,,	Bartlett, R. G.	Paignton
,,	Beevers, M.	Wombwell
,,	Caryl, H. A.	Liverpool
,,	Chitty, C. F.	Ontario
,,	Edwards, W. J.	Oxford
,,	Harthill, I. J.	Stretford
,,	Howard, M. L.	Preston
,,	Marshall, W.	Hawick
,,	Murray, J. T.	Glasgow
,,	Raistrick, K.	Wigan
,,	Taylor, J. R.	Ormskirk
,,	Yule, R.	Aberdeen

Ordinary Grade Certificate in Gas Engineering (Supply) (15)

Class	Name	Town
First	Rimmer, J.	Birkenhead
,,	Thornley, T.	Wallasey
Second	Ashworth, J. C.	Hebden Bridge
,,	Bennett, T. G.	Walsall
,,	Crick, G. C. G.	Newton Abbot
,,	Foster, D.	Preston
,,	Garland, A. W.	Margate
,,	Jones, J. F.	Swansea
,,	Pitchford, J. H.	Wolverhampton
,,	Rummey, M. W. P.	Southampton
,,	Southwell, F. D.	Glasgow
,,	Southworth, J.	Prescot

Ordinary Grade Certificate in Gas Engineering (Supply)—contd.

Class	Name	Town
Second	Tilley, J. S.	Weybridge
,,	Tyler, H. B.	Exmouth
,,	Winston, F.	Manchester

Ordinary Grade (Single Subject) Gas Engineering Supply) to qualify to sit for the Diploma in Gas Engineering (Manufacture) (15)

Class	Name	Town
First	Alsop, C. J.	Rushden
,,	Bates, J., B.Sc.	Nottingham
,,	Beardshaw, W. E.	Bristol
,,	Brown, R. B.	Leigh
,,	Croxton, P. C. L.	Shrewsbury
,,	Dean, A. W.	Parkstone
,,	Drabble, J. S.	Harthill
,,	Grime, K. P.	Leyland
,,	Hamlyn, D. W.	Darlington
,,	Haslam, E.	Keighley
,,	Henderson, P. L.	Norton-on-Tees
,,	Johnson, D.	Reading
,,	Robertshaw, B.	Cwmbran
,,	Sawyer, F. W.	Darlington
,,	Whitaker, D. W.	Nottingham

INTERNAL CANDIDATES (134)

Higher Grade Certificate in Gas Engineering (Manufacture) (42)

Class	Name	College
First	Burridge, K. A.	Westminster
,,	Coote, D. R.	Westminster
,,	Gower, H. M.	Gloucester
Second	Barnett, B. J.	Westminster
,,	Blakeley, H. J.	Westminster
,,	Blakemore, T.	Birmingham
,,	Boardman, F. H.	Leicester
,,	Churm, S.	Manchester
,,	Clark, P.	Westminster
,,	Clutterbuck, L.	Westminster
,,	Croysdale, J. H.	Westminster
,,	Cummings, W. J.	Rotherham
,,	Hudson, K. J.	Manchester
,,	Hyde, H. W.	Westminster
,,	Jepson, J. A.	Manchester
,,	Lane, J. R.	Birmingham
,,	Langford, J. P. N.	Birmingham
,,	Lea, R. J.	Gloucester
,,	Lohse, R. F.	Westminster
,,	Macdonald, J. C.	Edinburgh
,,	McHugh, A.	Glasgow
,,	Maltby, R.	Chesterfield
,,	Mamers, B.	Chesterfield
,,	Mason, J. D.	Bradford
,,	Millar, C. M.	Glasgow
,,	Monks, R.	Manchester
,,	Noble, B.	Huddersfield
,,	Ogley, H. D.	Rotherham
,,	Oliver, J. C.	Manchester
,,	Parker, F. B.	Rotherham
,,	Poole, R. J.	Manchester
,,	Roberts, D.	Leicester
,,	Savage, K. T.	Birmingham
,,	Sinnott, R. K.	Birmingham
,,	Stanton, F. C. S.	Westminster
,,	Stewart, J. C.	Glasgow
,,	Stokes, D. B.	Manchester
,,	Terry, G. R.	Burnley
,,	Tolliday, G. J.	Westminster
,,	Warburton, F. J.	Manchester
,,	Womersley, J. H.	Rotherham
,,	Worrall, W. D.	Gloucester

Ordinary Grade Certificate in Gas Engineering (Manufacture) (25)

Class	Name	College
First	Cummings, W. F.	Glasgow
Second	Boardman, F. G.	Cardiff
,,	Bottomley, W. K.	Huddersfield
,,	Campbell-Kelly, J. A.	Manchester
,,	Downie, R. L.	Glasgow
,,	Franklin, R. G.	Cardiff
,,	Hinchliffe, J. H.	Huddersfield
,,	Howson, L.	Glasgow
,,	Lane, J. R.	Birmingham
,,	Lunn, R.	Manchester
,,	McDonald, J.	Edinburgh
,,	Martin, R. W.	Birmingham
,,	Merralls, G. K.	Westminster
,,	Morris-Ashton, K.	Manchester
,,	Mottershead, A.	Manchester
,,	Pickles, D. T.	Burnley
,,	Pollard, K. R.	Bradford
,,	Praties, R. G. M.	Edinburgh
,,	Savage, A.	Burnley
,,	Smout, W.	Plymouth
,,	Sweatman, C. W. L.	Westminster
,,	Sykes, N.	Huddersfield
,,	Walton, R.	Newcastle-on-Tyne
,,	Winn, P.	Glasgow
,,	Young, D. A.	Manchester

Higher Grade Certificate in Gas Engineering (Supply) (27)

Class	Name	College
First	Barker, D. G.	Westminster
,,	Willes, H. G.	Westminster
Second	Burden, J. E.	Birmingham
,,	Challinor, R. W.	Birmingham
,,	Cox, A. S.	Tottenham
,,	Curr, S. H.	Westminster
,,	Diamond, D. F. G.	Westminster
,,	Gardner, C. F. C.	Birmingham
,,	Goodson. F. J.	Westminster
,,	Greene, J. D.	Westminster
,,	Grey, J. R.	Westminster
,,	King, E. M.	Westminster
,,	Macnamara, W. P.	Westminster
,,	Mason, J. D.	Bradford
,,	Nye, A.	Westminster
,,	Parish, P. H. W.	Westminster
,,	Rains, E. R. H.	Westminster
,,	Raworth, A. C.	Tottenham
,,	Renton, J. P.	Edinburgh
,,	Rose, B. H.	Tottenham
,,	Simmons, W. P. H.	Tottenham
,,	Taylor, B.	Westminster
,,	Taylor, J.	Westminster
,,	Walker, S. J.	Westminster
,,	Williamson, T. A.	Tottenham
,,	Witton, L. C. A.	Birmingham
,,	Yeaman, A. G. D.	Birmingham

Ordinary Grade Certificate in Gas Engineering (Supply) (37)

Class	Name	College
First	Hazeldean, C. D.	Brighton
,,	Jones, L. R.	Bristol
,,	Matthews, E. C.	Derby
Second	Ayres, C. A.	Westminster
,,	Bradbury, H.	Stoke-on-Trent
,,	Carter, R. L.	Derby
,,	Chicken, T. E.	Newcastle-on-Tyne
,,	Cooling, C. G.	Brighton
,,	Davis, W.	Bristol
,,	Downie, R. L.	Glasgow
,,	Eccles, G.	Bradford
,,	Edwards, D. M.	Derby
,,	Freestone, W. G.	Brighton
,,	Grover, W. F.	Westminster
,,	Hadfield, F. L.	Manchester
,,	Hardman, H. E.	Bristol
,,	Howell, A. H.	Westminster
,,	Howson, L.	Glasgow
,,	Jellis, A. J.	Bristol
,,	Keyse, G. W.	Westminster
,,	Lambert, G. J. E.	Tottenham
,,	McDonald, J.	Edinburgh
,,	McGill, F. A.	Birmingham
,,	Marsh, A.	Derby
,,	Moyse, K. A.	Plymouth
,,	Parnaby, N. L.	Brighton
,,	Praties, R. G. M.	Edinburgh
,,	Read, W. G.	Cardiff
,,	Silver, L. J.	East Ham
,,	Smith, G. E.	East Ham
,,	Spittle, W. G.	East Ham
,,	Tandy, J. E.	Coventry
,,	Virgo, R. T.	Plymouth
,,	Welbourn, J. W.	Manchester
,,	Williames, G. F.	Cheltenham
,,	Winn, P.	Glasgow
,,	Yule, J. I.	Edinburgh

Ordinary Grade (Single Subject) Gas Engineering (Supply) to qualify to sit for the Diploma in Gas Engineering (Manufacture) (3)

Class	Name	College
First	Duignan, D. H.	Birmingham
,,	Hill, F. L.	Westminster
,,	Pollard, R.	Manchester

COMMON PRELIMINARY EXAMINATION.

The following candidates submitted by the Institution of Gas Engineers were successful in the April, 1951, Common Preliminary Examination of the Engineering Joint Examination Board:

Name	Town
Russell, F. P.	London
Swain, S. E.	West Hartlepool

All New Council Houses erected by the St. Ives (Hunts) R.D.C. at Hemingford Grey are to have gas laid on, and the Council is to provide a gas washboiler in each house.

JUNIOR ASSOCIATION ACTIVITIES

WESTERN

THE first meeting of the 1951-52 session of the Western Junior Association, which celebrates its 25th anniversary this year, was held at Swindon on October 6. Members assembled at the Gorse Hill gasworks, where much interest was displayed in the modern plant and efficient layout.

Following the visit to the works, the meeting opened with the induction of the new President, Mr. T. W. Clapham (Bristol) by the retiring President, Mr. F. W. Sansom of (Exeter), and this was followed by a presentation to Mr. Sansom by the new President. In thanking the Association for the support he had received in the past year, Mr. Sansom felt that the most successful meeting had been 'Students' Day,' and he was pleased that such a meeting had been included in the current programme.

A paper was given by Mr. H. Hobbs (Swindon) on the 'Use of Exhaust Steam.' An abstract will be published in a later issue.

MANCHESTER DISTRICT

THE annual general meeting and President's Day of the Manchester District Junior Association of Gas Engineers was held in the Gaumont Ballroom, Morecambe, on October 20. The meeting followed the North Western Gas Board staff conference which had been held in the same place during the previous day and a half.

The retiring President, Mr. D. M. Thompson, occupied the chair at the outset and welcomed the Chairman (Mr. D. P. Welman) and Deputy Chairman (Mr. A. Henshall) of the Board, also Mr. E. W. Tame (member of the Board), Mr. C H. Leach (General Manager of the Liverpool Group), the Chairman of the Manchester and District Section of the Institution of Gas Engineers, and Councillor C. E. P. Stott (Chairman of the North Western Gas Consultative Council).

Mr. D. P. Welman said he was very glad to have this opportunity of attending their meeting. His contacts with the Juniors had not been very great, but in the short time he had been Chairman of the Board he had realised how much the industry benefited from the contribution of the Juniors in almost everything it did. Mr. Welman went on to refer to the silver medal which the Board was offering for an initial paper by a member of the Junior Association with a view to encouraging the younger members of the industry. He outlined the rules which had been proposed for this award. Among these, the paper must be written and presented by a member in the Board's employ. The member must not have previously presented a paper to any association, other than a short paper for the F. Johnston prize. Senior officers of the Board and their chief assistants would not be eligible. The award would be on a basis of points for (a) technical qualities; (b) manner of presentation of the written matter; and (c) manner of presentation by the author and his handling of the subsequent discussion.

The President thanked the Board for the offer of this medal and expressed appreciation of the practical way in which the Board encouraged the Juniors' work.

The 53rd annual report was presented to the meeting, showing a total membership of 441—a net increase of one during the year. The council reported that the representative of the Manchester and District Section of the Institution was Mr. J. Grayston, general manager of the North Cheshire Group. The Colonel W. M. Carr prize had been awarded to Mr. J. M. Brown for his paper entitled 'Carbonisation in Continuous Vertical Retorts,' which had also been awarded the silver medal of the S.B.G.I. The F. Johnston prize was won by Mr. J. R. Taylor for his paper on 'Conversion of a Low Pressure Distribution System to an Intermediate Pressure System.'

The accounts for the 1950-51 session showed an excess of income over expenditure of £36 10s. 2d., which added to the amount brought in made an available balance of £108 12s. 4d.

The incoming president, Mr. L. G. Townsend (Liverpool), delivered his Presidential Address, which will be dealt with in a subsequent issue of the *Journal*, and after the meeting the Association was entertained at tea at the invitation of the North Western Gas Board.

25,575 Years of Service

DURING the last few months, 602 employees of the North Thames Gas Board have qualified for long service awards, by virtue of having completed 40 years' service with the Board. Between them these men have served for the total of 25,575 years—an average of 42.5 years per man.

At a ceremony held last week at the Board's Products Works at Beckton, 275 of these employees, drawn from the eastern half of the Board's area, were presented with their long service awards by Mr. Michael Milne-Watson, Chairman of the Board. We were present at a similar ceremony for the remainder of the men which was held at the Central Hall, Westminster, on October 8.

At the latter meeting, Mr. Milne-Watson explained that at the request of the employees, the Board had changed the method of giving long service awards. In future a long service award would be given after 40 years (as soon after that period as possible) instead of waiting until the recipient retired.

Forty years ago, he said (George V coronation year), was a different world. Within the industry they had seen the introduction of modernised plant and better methods of production, making working conditions an altogether different thing. On the commercial side had come the birth of the enamelled cooker, the perfection of the gas water heater, and—most astonishing of all—the gas refrigerator. But the greatest change of all was the nationalisation of the industry, which had resulted in making the North Thames Board the largest from the point of view of gas production and the number of employees engaged in it. They were determined that mere size—which could be a good thing and also a bad thing—was not going to impair the efficiency of the organisation. They were also determined that the good relationship between employees and management should not suffer. 'We must keep,' said Mr. Milne-Watson, 'as far as we possibly can, the personal interest in the business of every single employee which has meant the success and the building up of this very great organisation of which we are all members. We are proud of this record.'

SOUTH WESTERN SECTION — Continued from p. 211

Chairman, Mr. Brown remarked: 'This may be the start of moving the centre of gravitation more towards the North East. I am sure that when Mr. Ingham comes to the chair we will give him the support he is now giving us. I hope he will bring some pressure to bear on people from the north of our Section to enter into our proceedings.'

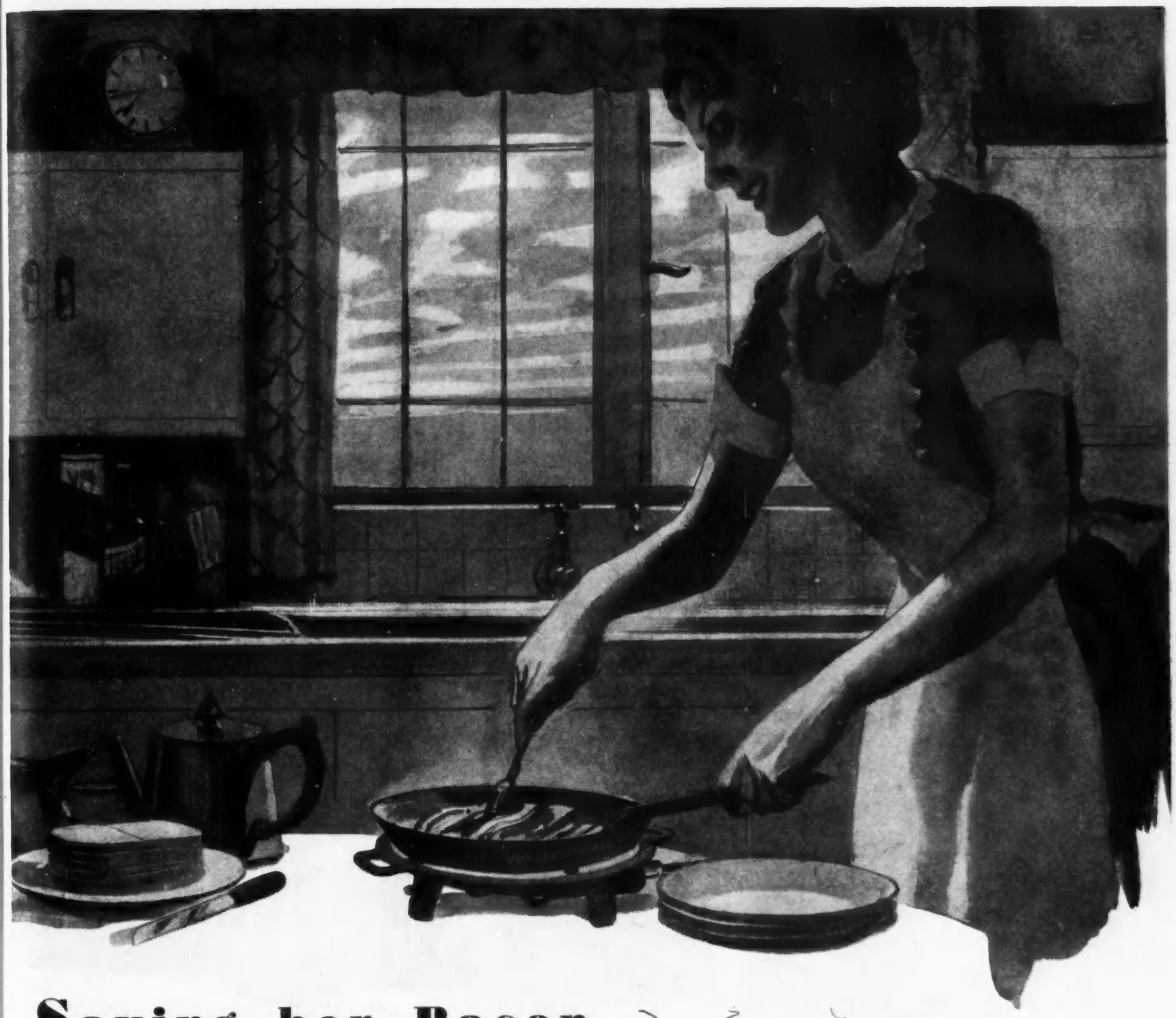
A letter of resignation was received from Mr. J. Wesley Whimster (Bath) and tribute was paid to his vivid personality and its effect on people in the industry.

Adopted as new members of the Section were six old members of the Southern Association. They are Mr. W. T. Baker (Exmouth), Mr. J. B. Taylor (Bristol), Mr. R. Pollard (Manchester), Mr. R. W. N. Cameron (Bristol), Mr. T. N. Dent (Bristol), and Mr. T. W. Clapham (Bristol). Also welcomed to the Section were newcomers Mr. E. Aspinall (Elland) and Mr. R. L. D. Medlin (Falmouth).

Mr. Brown was appointed the District Member of Council. Elected as new members of the Management Committee were Mr. C. P. Bateman (Bath) and Mr. K. G. Bodiley (Weston-super-Mare).

The accounts showed a balance for the year of £20, making an accumulated fund of £65 (£46 was the share-out received from the old Southern Association).

Mr. Lowther, accepting his new office as Chairman, asked for the co-operation of all members in making the Section a live asset of the Institution.



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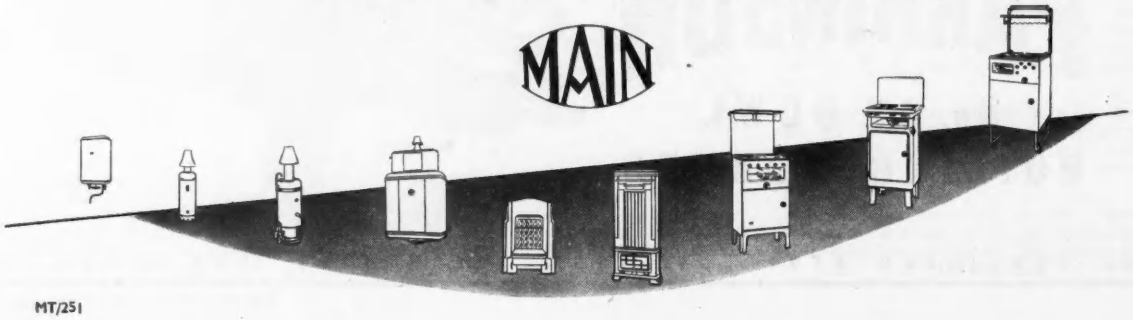

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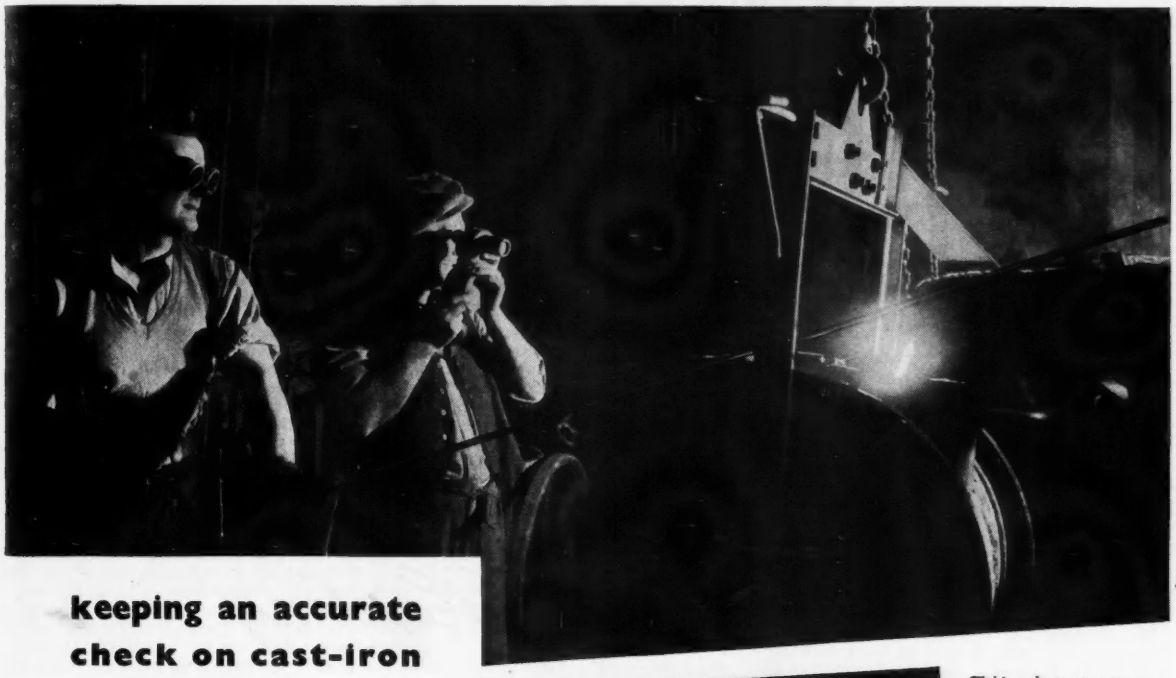
IN GAS APPLIANCE MANUFACTURE



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North Western Staff Conference

Large Gathering at Morecambe

Upwards of 450 members attended the area staff conference of the North Western Gas Board at Morecambe last week when a number of interesting papers were read and discussed. Mr. D. P. Welman (Chairman of the Board) presided.

THE proceedings opened on Thursday evening with a reception and dance at the Gaumont Hall when the delegates were the guests of the Mayor and Corporation of Morecambe and Heysham. Some 800 members and their ladies were present.

The business sessions occupied the whole of Friday, and commenced with an official welcome from the Mayor, who commented that gas was first produced in Morecambe in 1858. At that time, he observed, the price was 4s. 7d. per 1,000 cu.ft. Today it averaged about 5s. 3d. He wished the conference every success and hoped the members would take away with them pleasant memories of Morecambe.

The Chairman, in thanking the Mayor for his welcome as well as for the Corporation's hospitality on the previous evening, said that one of the purposes of conferences of this kind was to counter the atmosphere of centralised bureaucracy which was often attributed to them. He went on to express regret at the absence of the Minister of Fuel and Power, who had intended to be present but had been prevented by election activities. They also regretted the absence of Sir Edgar Sylvester (Chairman of the Gas Council) and Colonel W. M. Carr, late Chairman of the Board. He was pleased to welcome the representative of the Ministry of Fuel and Power (Mr. R. N. Quirk); also the Deputy Chairman of the North Western Gas Consultative Council (Mrs. E. Eccles), Alderman W. H. Stables (member of the Council), and Mr. P. Rowlinson (Secretary). He paid tribute to the work of the Council during the past year. They also appreciated the work of the Joint Industrial Council, as a result of which they had few internal difficulties. Among the other purposes of such conferences were to have the opportunity of meeting each other at close quarters and to exchange views, which provided a valuable welding together of their organisation.

The Papers

The first paper was by Mr. W. Oldham (Group General Manager of the Furness Group) on 'Problems of Management in a Group of Small Undertakings.' This briefly described the make-up of the author's group and the major problems involved in organising it without any pre-set structure to control or guide them. He emphasised that in common with many other groups they were at the half-way stage of reconstitution and pleaded that, until their final objective was reached, they should have the tolerance and patience of the consumer and all those who would judge their efforts.

After lunch a discussion on 'Stores Control and Accounting' was initiated by a paper by Mr. P. Knowles and Mr. R. Kerr, respectively Accountant and Deputy Accountant to the North Western Gas Board—based on the contention that with stocks and stores throughout the area valued at more than £4,300,000 the arrangements for housing, recording, and accounting for such a large current asset must be highly efficient. The authors commented on the fact that most manufacturers went out of their way to make their particular commodity and its spare parts different from those of their rivals and emphasised the benefits arising from standardisation of articles, fittings and spare parts.

In the third paper, entitled 'Looking Forward,' Mr. T. D. Olver (Production Engineer to the Manchester Group) pointed to some of the ways in which they could anticipate future trends within the industry and organise accordingly. In seeking to probe the future, he observed, guidance must always be sought in the past, and whatever might transpire in the years to come it was their duty as responsible officers of a public service to see that adequate plant, of the right sort, was available.

Friday's sessions were brought to a close with a short summing up by the Chairman, who also thanked the authors for their papers, which, he said, were useful and constructive. He paid tribute to the headquarters technical organisation which worked extremely well and was appreciated by everybody in the groups. It was a very vital part of their organisation. They could have as much decentralisation as they wanted, but there were some things they must cover by co-ordinated effort.

The Saturday morning session consisted of an 'open forum' at which questions on a wide variety of subjects were 'fired' at the experts—subjects ranging from the employment of foreign labour to the withdrawal of local managers' official motor cars.

Sales and Service

In bringing the proceedings to a close, the Chairman said that he had been considerably encouraged by this conference. One of the most important questions was that of sales and service, and they were not satisfied with the existing set-up. He did not mean by this that they were not satisfied with the work of the personnel concerned. Stores control was a very big part of their task. Their showrooms were in certain places admirable; in others they were mediocre; in others they were non-existent. They had schemes for improvement of showrooms well in hand, but the present restriction on work of this nature was going to make their plans very difficult of achievement for the time being. But they must not be discouraged on that account. As soon as they could do so they would go ahead with their plans.

Mr. Welman also emphasised the need for a sound market survey, and it was the service centres and their personnel alone who could effectively provide the market research and figures which they needed. This was something to which they must give very early consideration, for at the moment they were largely working blindly.

He went on to speak of working conditions and observed that he could not be too strong in his condemnation of the conditions at certain works in the area. It was not a question of blaming those who were now operating those works or those who operated them previously. It was rather the approach to initial design. They had in the past been prepared to leave questions of works design to the contractors who built the plant instead of handling the matter right from the bottom. They must start improving conditions immediately. Without wishing to 'gild the lily,' they must provide conditions in which they themselves would be willing to work. He spoke with particular reference to light and ventilation, while they must also provide suitable washing facilities and welfare generally.

Welfare

Welfare was an unfortunate word. To many people it suggested a beneficent charity or a form of window dressing, whereas it was actually the provision of proper working conditions in office and works, as well as for those who worked outside. And these conditions must be provided as soon as possible. The conditions in which people worked had a very strong reaction on their psychology.

Also under welfare came medical and first aid facilities. There were certain places in the area where these things were very adequately covered, but by and large this was not the case, and there was a lot more to be done. It was their intention to appoint as soon as possible a chief medical officer whose duty it would be to formulate a suitable policy throughout the area. In this direction they should see some results within the next 12 months.

Then again, there were the works committees. They had now almost completed the works committee set-up for the area as a whole, and he hoped the results they would attain would

be as good as, or better than, some of the very excellent results attained in certain parts of the area already, where such committees had existed for some time. If they could get men with the right approach to life on both sides on these committees they could do a great deal to bring the staff and management closer together in a more general understanding of what they were doing and the reasons why they were doing it.

Touching on the subject of recruitment, the Chairman remarked that they had very few young and 'up-and-coming' men to fill the vacancies which must occur. They were not offering sufficient incentives for filling the vacancies which they had. The public had been lulled into feeling that the gas industry was secondary to electricity—springing naturally from the fact that gas came first and as a lighting agent was largely supplanted by electricity. They must correct that impression, for there was no industry which had a greater contribution to make to the nation's future than the gas industry. They must establish the view that their industry had a great future and offered a great inducement to recruits. They must provide conditions which were as attractive as any other industry and finally they must deal with the very important question of education and training.

They believed it was not sufficient to provide facilities for evening classes alone. Education and training was very much greater. They must train gas engineers, fitters, and many different types of personnel, who had the right to expect a sound grounding in their life's work. The Board was not wholly satisfied with the plans it had in mind. They must widen their outlook on education and training. It was planned to set up not a number of small centres which could scarcely be self-supporting, but two or three large and fully equipped training centres. They would continue to have at undertaking level local facilities for refresher courses, but the major opportunity would be offered by the larger centres for men to qualify for advancement in the industry.

Nationalisation

Mr. Welman said he must say a word on nationalisation. It did not matter, he declared, whether this industry was nationalised, rationalised or any other 'ised.' The fact remained that they were together and had the facilities to achieve a greater task—and that was the sum total of the position. The only difference was that the money came from the Treasury —and the fact opened the door to political interference. So far that had not been a material factor and he hoped it would never be. Their industry could not be used as a shuttlecock for party politics. If they could keep clear of political contact, nationalisation would be the biggest boon which had ever been given to any industry.

On the question of prices, continued the Chairman, they had been attacked because the price of gas had been increased by 14%. Other than commodities which carried a subsidy there was no other industry which had increased its price so little in the face of the increased costs they had had to bear. It was unfair to suggest that nationalisation was a failure on that account. The reason for the relatively small advance in price was the savings made within the groups since nationalisation. At the same time they had in many instances improved their supply and service conditions out of all recognition.

They had a very special structure in the gas industry and in this they were fortunate. This structure, providing as it did complete autonomy for each area board, gave them the opportunity to manage their own affairs in the way they believed was right. It gave them power to act. But autonomy could be a very dangerous weapon. If they failed to have regard to the national picture as a whole they would be abusing the power vested in them.

The division of the gas industry into 12 decentralised boards, free to manage their own affairs in accordance with the needs of their particular regions without interference from any central authority, placed the gas industry in a special category among the nationalised industries. The decentralised structure, continued down to the operational groups where the executive decisions were taken, avoided the objectionable delays and misunderstandings inevitable with over-centralisation and remote control.

As regards electricity, Mr. Welman observed that the report for the North Western area for 1949-50 showed that 1,730,500 units were consumed for domestic heating and cooking alone. These particular functions could be more efficiently and economically performed by gas and coke. The equivalent number of therms would be 73.4 mill. To produce the amount of gas would require the carbonisation of 980,000 tons of coal, which would yield 490,000 tons of coke. This could replace in domestic grates 630,000 tons of coal—a net increase of 350,000 tons of coal. The amount consumed by electrical generating plant to produce the number of units quoted, however, was 665,000 tons. The net saving would therefore be 315,000 tons of coal while at the same time relieving the electricity industry of a peak load which was responsible for much of the load shedding and consequent loss of industrial production.

He did not suggest they could suddenly take over a load like that, but he believed it could be done, even though it entailed some limitation of the consumer's freedom of choice. But surely this was preferable to loss of industrial production. It was the duty of all those responsible for sales and service to increase the use of gas for cooking and household heating. This would be a national service. The gas industry was going to be the last bulwark of their national fuel defence.

Largest Gas Grid

The Chairman finally referred to plans for linking up the whole of the north west's industrial belt by the establishment of Britain's largest gas grid. Ten years from now, possibly earlier, he said, the great industrial belt of the north west stretching from Hoylake in the west to Glossop in the east, as far north as Barnoldswick and as far south as Nantwich, would be interconnected by gas mains in an intricate and highly flexible grid. Work had already been started on some sections of the grid. Serving more than 5 mill. people through some 10,000 miles of main, the grid when completed would be the most extensive in the country.

It would enable many gasworks to operate continuously at full capacity and thus with greatest economy while the fluctuating peak demands in different parts of the area would be supplied by gas pumped from great plants located strategically at such centres as Garston, Partington, Crewe and Oldham.

Since the Board took over 2½ years ago, Mr. Welman disclosed, annual production of gas in the north west has been increased by 18¼% from 294⅛ mill. therms to 348⅞ mill. therms, and coke production by 7⅜% from 1,715,000 tons to 1,846,000 tons. New production plant costing £9¾ mill. and representing an additional daily output of 456,000 therms had been authorised, and the laying of 1,360 miles of new main costing some £7 mill. had been authorised, of which 610 miles costing £3¼ mill. had already been laid.

During the second year of its operation the Board, which controlled 103 gas undertakings, representing nearly one-sixth of the entire British gas industry in output of gas and coke, carbonised 4,114,336 tons of coal.

The proceedings were brought to a close with a vote of thanks to the Chairman on the proposition of Mr. W. W. B. Stoddart, J.P., a member of the North Western Board, who commented that no industry could be run successfully unless its members had confidence in one another.

It was altogether a most valuable and successful gathering. The whole organisation was admirable, though the acoustics of the conference hall left something to be desired and one felt some sympathy for the team of official stenographers who were endeavouring to take a verbatim note of the proceedings.

Light Relief

Not least of the memories brought away from Morecambe will be of the illuminations. No description can do adequate justice to this fantasia of brilliance. Miles of seafront outlined in coloured lamps merged in the distance into a continuous line of light. In the centre one plunged into a veritable fairyland festooned with hundreds of thousands of electric bulbs. Ropes of light descended from rooftops and arched over the roadway. Pier, winter garden, even the prosaic railway station, picked out in pinpoints of colour; a fountain constructed entirely of shimmering lamps; a peacock in gorgeous hues; a giant butterfly with glittering wings; pagodas and rustic bridges all added their quota to an almost unbelievable spectacle. Floodlit gardens with lamps skilfully concealed amid the shrubs and rockeries enhanced the fairylike effect with ever-changing colours. Unquestionably during the Morecambe and Heysham illuminations electricity had a useful base load!

North Western Staff Conference

LOOKING FORWARD

By T. D. OLVER, M.Inst.Gas E.,
Production Engineer, Manchester Group, North Western Gas Board.

In this paper, of which the following is an abstract, the author explains why, with integration of the Manchester group of gas undertakings, coke oven gas plant is being erected as base load plant at the Partington works. The paper as a whole points to the opportunities afforded by group working.

THE North Western Gas Board's area represents 14% of the British gas industry. The Manchester group of the Board is the subject of this paper, and the group has the following characteristics:—

(1) It is representative of the large undertakings in the area.
(2) Included in the group are works which produce from 100,000 to 25 mill. cu.ft. of gas per day.
(3) The widest variety of plant in current use is included on the various works.
(4) Oil refinery gas is bought and diluted.
(5) The group is considered to be fairly representative of Britain as a whole, since it consists of both industrial and domestic consumers, spread over purely industrial and residential districts, as well as mixed areas.

The main issue is: 'How much gas shall we sell, and how shall we produce it?' The question demands a speedy answer. With the present rate of increase in the Manchester group, the demand for gas will outstrip carbonising potential in the winter of 1954-55. At present, plant with an approximate capacity of some 30 mill. cu.ft. per day is being built to meet current increases and to replace obsolete plant. It will still be necessary to provide additional plant, and to decide what type the plant must be and of what capacity. We must also take into consideration any outside sources of supply such as oil refinery gas which may be available. In this connection Manchester has had early experience, for the Manchester undertaking pioneered the purchase of oil cracking gas in this country. How far we can rely on this source is questionable. Not only does the dilution of high C.V. gas present difficulties, but the question of specific gravity plays an important part. The experience gained in Manchester has been that the undertaking must have plant available to meet all demands from the consumer, because we must at all times be solely responsible. Therefore, only when we control the manufacture of the total supply can we be assured that the supply to the public is not jeopardised. It is obvious that carburetted water gas plant admirably meets dilution needs where refinery gas is in question; but for the main productive requirements some form of coal carbonisation plant must still be considered.

Choice of Coke Oven Plant

Each type of carbonising plant has its merits and demerits. The fundamental point at issue must always be the economics of the cost of making gas, and in this direction the Board's technical officers have confirmed that the most economic unit is of a size capable of producing approximately 10 to 15 mill. cu.ft. of gas per day regardless of whether this unit is of continuous vertical retorts, intermittent vertical retorts, or horizontal retorts. The installation of continuous vertical, intermittent vertical, or horizontal retorts of this size when operating under variable load conditions will produce gas at an approximate price of 8d. per therm, this figure including capital charges on the plant.

There are other questions, however, apart from costs into holder, which must be considered when installing a carbonising plant, notably capital costs, speed of erection, available manpower, flexibility, and ability to handle a wide variety of coal. For these various reasons it has been decided that further extension of production plant for the Manchester group would best be served by the erection of coke ovens at the Partington works.

A coke oven installation operating under variable load conditions will produce gas at a price of approximately 6½d. per therm, this figure including capital charges. A coke oven battery operates under base load conditions from the point of view of the quantity of coal carbonised per day, which amounts to between 1,100 and 1,200 tons per day in the most economic unit already referred to. On a modern coke oven unit, variations in gas demand are met by proportional coal-gas producer gas firing under the battery, the excess gas produced being returned to the heating system in as many oven walls as may be necessary. The flexibility achieved in this manner covers an output range of 55% to 100% of the total gas produced in the battery. An important feature of the method of operation is that the variation in range of saleable output of gas is achieved with a variation in net cost of gas into holder of les than 1.5d. per therm. In other words, load factor has a much smaller influence on the cost of gas into holder on a coke oven battery than on any other type of carbonising plant.

Home Electricity Generation

The plant will be designed so that electrical power requirements for manufacturing operation and for the distribution of gas will be provided by 'home generation.' It is proposed to instal water tube boilers arranged for the firing of coke breeze of size ⅝ in. and below. The steam produced from the water tube boiler installation at a pressure of 300 lb. per sq. in. and at a temperature of 750°F. will be fed to a pass-out turbo-alternator set, which will generate power and provide process steam at 15 lb. per sq. in from the pass-out of the turbine. The cost of generating electricity, with breeze at its current price, and allowing for capital expenditure on boiler and power generation plant, will be of the order of 0.75d. per kWh, which is less than the price paid to the British Electricity Authority. Furthermore, we have another advantage of 'home generation' in that we are independent of an outside supply and the accompanying 'cuts' with which we are all so familiar.

The coke available for sale per ton of coal carbonised in a coke oven plant is higher than with other types of carbonising plant. As a result we shall have a greater quantity of coke for sale per therm of gas made than would be available under other conditions.

There will ultimately be available within the group carbonising plant as follows:—vertical retorts, with steaming or producer gas dilution, horizontal retorts, and coke ovens. It is certain that dilution gases will also be required to bring the calorific value of the total gas production to 450 B.Th.U., and in addition a supply of refinery gas of high calorific value is available. The plant available should therefore be adequate to meet not only current demands, but the increased consumption anticipated.

Difficulties associated with varying declared calorific values

within the group would have continued had not a common standard been chosen. The group embraced declared calorific values of 450, 475, and 500, produced in a wide variety of plants—verticals (with steaming) horizontals, producer gas, water gas (blue and carburetted).

Producer gas with a calorific value of 125-130 B.Th.U. and of a specific gravity of 0.89-0.90 is possibly cheaper to produce therm for therm than water gas, but suffers from the disadvantage of a very high inert content, which, while drastically affecting the calorific value of the mixed gas, introduces some very undesirable features. Of these, the raising of the specific gravity of the resulting mixture is possibly the most serious, since it lowers the rate of flow and delivery of gas through mains and orifices and reduces the Wobbe index, the A.T.B. number, and the flame temperature.

Blue water gas, on the other hand, has a calorific value of 290-300 B.Th.U. and a specific gravity of 0.55. Consequently, the effect on specific gravity and the other characteristics mentioned is much less. Further, since much more blue water gas is necessary to bring the calorific value to the final calorific value, the total volume available is greater; or alternatively the volume of coal gas required is less for a given total output and consequently less coal is required. By the use of carburetted water gas, the production of gas can be supplemented (at declared calorific value) if necessary. By the use of coke and/or coke breeze, both producer gas and water gas plants may contribute something to the control of the coke market.

Refinery Gas

Refinery gas of high calorific value has been available at Partington since January, 1949. As originally received, the calorific value was approximately 1,450 B.Th.U. and in the initial stages only producer gas was available as a diluent. As the specific gravity of the refinery gas was 0.88 and of the producer gas 0.89 the effect on the combustion characteristics was most marked and some temporary difficulties were caused until the specific gravity of the final mixture was brought under control by the limitation of the proportion of producer gas. Subsequently, water gas plant became available and the substitution of water gas for part of the producer gas considerably eased the situation. Ultimately, it is anticipated that the specific gravity of the mixed gases at Partington will be little different from that of the normal gasworks production.

Benzole extraction can be and is used to some extent to control calorific value. But the economic future of benzole extraction is somewhat uncertain, and too much reliance must not be placed on this means of control.

The use of liquid methane to supplement output, particularly at peak load, has been suggested. Thus, in a recent paper by G. G. Haselden and M. W. Reis (*Gas Journal*, May 9, 1951) the total cost of a liquid methane plant to supply peak load methane for a gasworks of mean daily output of 200,000 therms (about 40 mill. cu.ft. of coal gas) is given as £403,000 (based on 1950 values) and the total cost of stored methane as 24.7d. per therm, the maximum stored methane being equivalent to some 90 mill. cu.ft. of methane as gas. On a smaller plant which would be necessary for even the largest works of the Manchester group, the cost per therm in all probability would be still higher.

Carburetted Water Gas Plant

The total cost per therm of carburetted water gas even when the plant is operated only for short peak load periods is shown in the same paper to be less than that of liquid methane. It thus appears certain that in comparison with existing supplies of refinery gas and water gas, blue and carburetted, liquid methane would not help to meet demand even at peak loads. It would be considerably dearer than water gas, and would not bear comparison with the cost of the coke oven gas supply which is projected. It is, of course, possible, as the same paper points out, that other factors, as, for example, the manufacture of ethylene and liquid oxygen, might offset the cost of the methane, but such development would be outside the anticipated scope of operations of the group for the immediate future.

In Manchester, for most of the time, the plant is in operation for the purpose of producing blue water gas to dilute refinery gas received from Petrochemicals, Ltd. But the plant admirably fulfils the function of producing town gas of the correct C.V. when the outside source fails. Apart from this feature, the ease with which these plants may be brought into action to relieve peak load demands, their ability to control the calorific value of the works output by carburetting oil, and their minimum demand for available labour ensure for them an ever-increasing importance in the sphere of gas producing plant in present-day circumstances.

An important feature sometimes overlooked when seeking diluent for high C.V. gas is the added overall volume which can be achieved by dilution with blue water gas instead of producer gas. As an example, in diluting one volume of refinery gas of calorific value of 890 B.Th.U. the respective volumes resulting are 2.375 with producer gas and 3.75 with blue water gas to give a calorific value of 450 B.Th.U.; the specific gravities of these mixtures would be 0.71 and 0.53 respectively.

The question of specific gravity is extremely important and places very definite limits on the use of refinery and producer gas. The limiting figure of 0.67 maximum for the distributed gas accepted in Manchester agrees very closely with the figures obtained in Liverpool where the use of producer gas has been extensively developed.

Economic Changes

In the past, the cost of manufacture of water gas was prohibitive, largely due to the cost of manual operation and clinkering. But with the latest completely automatic sets, even allowing for the increased wages of to-day, the cost per therm of gas is highly competitive with that of gas made in the well-managed retort house. Added to this is the important feature that the modern plant with waste heat recovery is self-sufficient in steam and may even export steam for general works purposes. This feature is reflected in a further reduction in overall cost. The increasing use of low priced heavy oil for carburetting purposes also helps to reduce costs, and the latest plant for the Manchester group provides for this development.

The mechanically operated C.W.G. plant equipped for carburetting with heavy oil will play an important part in the design of our future extensions for these reasons, *viz.*:—

(1) It can produce the diluent required for normal base loads by production of blue water gas.
(2) It can meet high peaks of demand by carburetting with oil.

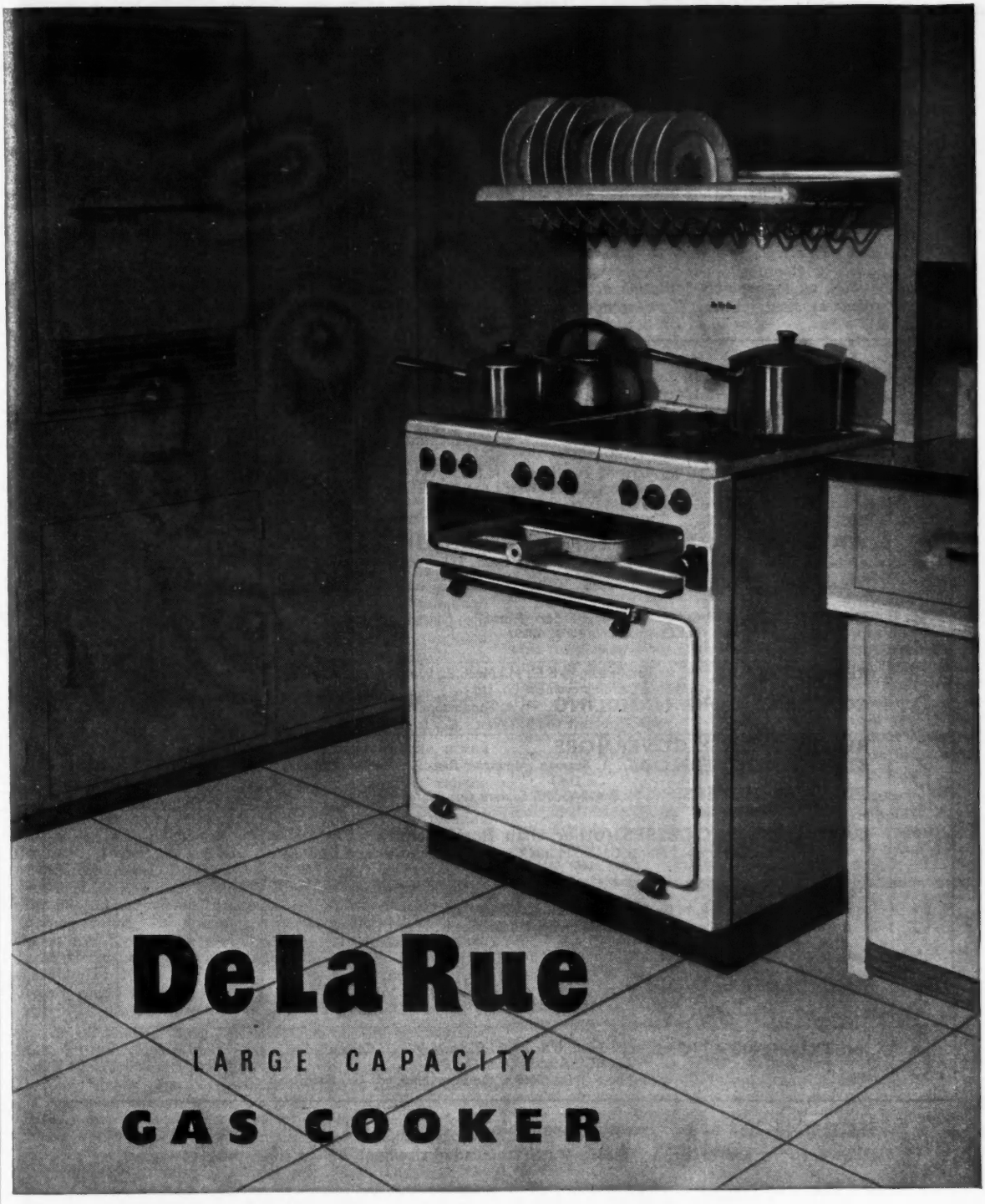
In the latter case, the rôle of diluent will be filled by producer gas from mechanically or manually operated producers, thereby achieving a considerable overall increase in total gas production.

This policy has been adopted in three of the major works in the Manchester Group, *viz.*:—

1. Partington, where two 3-mill. water gas plants have been for some time working as blue water gas plants for dilution purposes of the oil refinery gas.
2. Bradford Road, where a contract has been approved by the Board for the erection of two 3-mill. water gas sets to replace four small obsolete manual sets. Provision is made in this scheme for the early installation of two further sets when required.
3. Stretford, where it is proposed to instal two 2-mill. sets to dilute high C.V. gas from the horizontal settings to the standard declared caloric value of the group. A producer gas plant is in course of erection at this works to fulfil the requirements mentioned previously.

Siting

Having determined the type of plant we are to instal, we must decide where to erect it. Are we to aim for a few 'super works'—*i.e.*, works of 25 or more mill. cu.ft. per day—



For literature and information please write to :—

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Announcement

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SECTIONS 2, 3 and 5 are now available. Sections 4 and 10 will be ready shortly; other sections are in hand. Please watch this advertisement for further progress news.

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or shall we set a limit in the region of 10-12 mill. cu.ft. per day? It is now generally admitted that works can be too large for satisfactory management; certainly they can be too small for economic production, no matter how carefully they may be run. This is a problem which should be the subject of searching enquiry in the near future. For our part we must be sure our yardstick is right. Too often in the past engineers have found satisfaction in an unusually low cost into holder, or have racked their brains with excessive costs, in spite of constant attention to detail. Only now as the full benefit of grouping is making itself manifest have the anomalies been traced to a wide divergence in the basis of costing. Here, indeed, is a verdant field for the accountant. Let us have a standard form of works costing that provides truly comparative costs. This is not an easy task, for every works has its individual peculiarities.

In most cases, however, the problem of siting is settled not by studying ideals, but by the availability of space, and in the Manchester group there can be no question that Partington is the obvious and only site. The desirability of size limitation is, however, adhered to, for the new coke oven plant will be completely separated and isolated from the gasworks, with independent staff and independent costing. Only when the two streams of gas arrive at the compressors for final transmission to the consumer areas will they become a combined charge, and that to the distribution section.

Transmission Problems

The relation of site of manufacture to area of consumption is also of vital importance, for it is of no benefit to have a perfect production site if the cost of transmission of the gas to the consumer becomes prohibitive. At Partington, fortunately, we are well placed. When the works were planned in 1925, it was anticipated that the ultimate capacity would be in the region of 40 mill. cu.ft. per day, and a 36 in. diameter steel main suitable for high pressure gas transmission was laid accordingly to the holder station at Gaythorn. Around this main, therefore, has been planned the proposed main interlinkage of the Manchester group, and today's programme of integration is already under way.

The transmission plant for dealing with the gas production plant already in operation or planned at Partington has been carefully considered to ensure that the utmost economy in compression costs is secured irrespective of gas volume at any time. The project comprises nine machines with a total capacity of 78 mill. cu.ft. per day, which provides adequate standby against breakdowns and peak loads. Four of the machines are each rated at 12 mill. cu.ft. per day with an outlet pressure of 10 lb. per sq. in., and are driven by electric motors of 460 H.P. Two of the sets run at constant speed and the other two are variable, the variation being regulated by the gas outlet pressure which, through a governor and switch, controls the pilot motor operated induction regulator connected to the driving motor. The four motors run on 6,600 volts A.C. The other five compressors are similar in design and operation, each having an output of 6 mill. cu.ft. per day at an outlet pressure of 10 lb. per sq. in. Three of the machines have speed variations similar to the larger sets, and all five are driven by motors operating on 415 volts A.C.

All gas passing along the outlet mains will be measured through orifice plates and beyond these plates the mains are again interconnected through valves. Inlet gas to the compressors comes from the works gasholder and the inlet header is connected through non-return valves to each of the outlet mains, so that in the event of total compressor failure the mains would be kept alive by gasholder pressure. To prevent overdrawing from the holder a switch is fitted, operated by the holder when several plates from grounding. The operation of this switch through a master controller cuts the electricity supply to all compressors. The whole of the compression plant and switchgear is housed in one building with a party wall running the full length of the building between compressors and motors. One end of the motor room is walled off to form the main switchroom which contains the incoming panels and isolators for the high voltage current and also the 1,250 kVA transformer and low tension switchgear. A pressurised air system will be installed throughout the building to obviate the dust nuisance and provide heating.

Consideration of the electricity requirements of this and other new plant has shown that the current available is totally inadequate and has led to a complete re-design of feeder mains. Two high voltage cables will be laid between the Carrington sub-station of the North Western Electricity Board and a new works sub-station adjoining the compressor house. This works sub-station will form the receiving and distribution centre for the whole of the gasworks and future coke ovens and, when our own turbo-alternators are installed and in production, will be the means of supplying surplus electricity to the electricity system via Carrington.

Integration

With extended interlinkage between manufacturing and distributing centres comes the opportunity to develop the most economical load factors by absorbing peak load periods through higher constant volume transmission between holder stations throughout the 24 hours of the day. Gasworks with either horizontal, continuous vertical, or intermittent vertical retorts will operate under base load conditions, the load variation for the grid being taken at the coke ovens. This will ensure at all times and under all conditions the cheapest possible cost of gas into holder.

The development of a gas grid and the integration of undertakings with a centralised coke oven manufacturing station will thus link up a coke oven plant with existing gasworks plant of the most economic size. In the case of Manchester we shall have a coke oven unit at Partington linked with Stretford, Salford, Rochdale Road, and Bradford Road stations, each of them an economic unit in itself.

Now that the C.V. of gas in the Group has been standardised and when the compression plant now on order is completed, it will be possible to take in or send out gas from all stations manufacturing gas within the group with the minimum inconvenience. This interlinkage has also made possible the closing-down of two of the smallest and uneconomical works in the group—Knutsford and Wilmslow, where consumers have now reaped the benefits of lower gas charges. This will also apply to Lymm in the East Lancashire group. When the economics have been fully considered it may be the policy of the Board to link up to Liverpool along the East Lancashire Road, thus providing complete linkage for one of the most densely populated areas in the country.

The generally accepted rule pre-war for the capacity of an individual undertaking was storage to equal a normal day's consumption in peak load season. This rule allowed for easy week-end working with a capacity margin to permit more or less satisfactory reduction of make at week-end. But the rapidly increasing consumptions of the post-war period have negatived that happy state of affairs.

Holder Siting

With the interlinkage of undertakings and the development of new production capacity, a new approach to the question of holder siting was necessary. There can be little doubt that the proper place for storage is as near the point of consumption as possible, and in the Manchester Group we are planning to that end.

For the foreseeable future, main storage will keep to the well tried and long established principle of spiral, column guided, or waterless holders as the mainstay for bulk storage. High pressure storage can, and will in certain circumstances, be extremely useful, but for the most part compression costs will rule it out of the picture where large volumes are concerned.

In any undertaking there must be a ratio between gas consumption, production, and storage based on the winter time load, and though this ratio will alter slightly according to the type of district being served it may be assumed that the Manchester area represents a typical case. Here the deadline of gas in stock is 9 p.m. Friday evening. The question of more storage or more production plant to meet this increasing load thus becomes the problem to be solved.

However attractive the pictures of total gasification, we must remain a two-fuel industry for some considerable time to come. Should our estimated rate of increased gas manufacture be maintained for only the next five years, then the increased tonnage of coke available for sale in the Manchester group alone will represent a major problem.

The question therefore arises as to how we are to dispose the increasing tonnages of coke which accompany the suggested increases of gas production. The fickleness of the coke market is well known to us all; only 12 months ago there was in this area 289,000 tons of coke. At the time of writing there is only 29,000 tons to meet the coming winter, so that already we are having difficulty in supplying customers who have purchased coke appliances on our recommendation.

Coke Shortage

This shortage of coke is not because the public has suddenly become aware of the 'glowing' properties of coke, but because there are insufficient supplies of coal to satisfy the industrial and domestic market. Twelve months ago we were exporting, and all of us were clamouring to contribute our quota to the shipment. This winter we should be glad to hear that coke is being imported. We may ask how long will the present situation last. No one can answer these questions until the Government has given a clear indication as to the fuel policy it will pursue. If it were decided that on all new housing sites coke fires only were to be installed and that the burning of coal would be prohibited, then, pushing on with our conversions from coal to coke fires, we might eventually achieve more stable conditions in our own industry —but then the onus would be upon us to see that there was available to these consumers a never-failing supply of constant quality coke.

In the past, small works were unable to screen their coke efficiently because of the capital cost of suitable plant and equipment; the possibility of overcoming this difficulty is another point in favour of integration, even though its solution may mean additional transport costs. In the main, coke screening plants were designed to handle our maximum production, but not the maximum demand—*i.e.*, production plus the amount necessarily recovered from stock during cold weather periods. In future design we must include plant of adequate size to meet maximum requirements. The increase in capital cost will be offset by the saving in the maintenance of overworked plant and in wages at present required on overtime, if increasing periods of delivery are to be kept within reasonable bounds.

Sound Coke Policy

Even on some of our larger works there has been a lack of appreciation of the requirements of a sound coke pol[illegible] In planning the new coke plant necessary for the Manchester group, efforts have been made to profit from our mistakes of the past and to provide a screening system which will measure up to the requirements of the future. To that end new coke screening plants are being erected at three of our largest works in the Manchester group—*i.e.*, Partington, Bradford Road, and Salford.

The new plant is arranged to take all coke from the vertical retort house at present building, and also to replace the coke plant on the existing vertical house which has been in operation some 22 years. We have taken the opportunity thus offered to shorten the two gravity bucket conveyors which previously circled the house, and they will now merely lift the coal to twin band conveyors on the bunkers. Hitherto these G.B. conveyors were used for both coal and coke, as required. Twin band conveyors will also be arranged to deliver the coke to the new coke screening plant in similar style to that of the new retort house.

Breeze is further treated over a vibrating screen to recover material $\frac{3}{16}$ in. to $\frac{5}{16}$ in. for use on the water tube boiler plant and the fine dust will be passed to the coal blending bunkers for admixture with the coal passing to the retort houses. The graded coke bunkers have side outlets serving a conveyor, which delivers any desired size of material to the producer bunkers in both retort houses, and the 'fines' bunker has a similar outlet to the same belt which delivers to one of the coal blending bunkers.

Delivery chutes on the opposite sides of the bunkers are fitted with mechanical screens and pass to Simon automatic weighers arranged on the coke bagging stage alongside. The position of these outlets is interesting. They are arranged at the bottom of the vertical walls of the bunker cone, the advantage being that the continual movement of the coke passing down the bunkers causes smalls to fall vertically down into the cone, leaving the cleaner material against the walls. These smalls are withdrawn at the bulk loading outlets in the bottom of the bunkers when loading railway and road vehicles. All this material passes first over a final screen before loading, the 'fines' being led into a wagon standing on a parallel adjacent siding. The principal coke bunkers will be fitted with anti-breakage chutes, and dust catching plant is included.

As the Partington works is near the Ship Canal, calls are sometimes made on this undertaking to provide bulk coke at the shortest possible notice for shipping purposes. For this reason care has been taken to ensure that reclaiming from stock can be efficiently carried out from the coke storage raft.

Technical Control

In the larger works of the Manchester group we are attempting to provide more intimate technical control by splitting up the gas stream from the different retort houses into complete units, each unit with its own technical staff responsible for the efficiencies and maintenance of that unit including, as far as possible, the ancillary plant. By such intimate control we shall be rewarded not only by reduced costs for increased efficiency but by much longer life of settings and plant and by much information of great value in the assessment of the relative merits of the different types of plant. Healthy competition between the technicians responsible for individual streams can only lead to increased interest and efficiency provided that such competition is not carried out to the detriment of the plant. Our attempts to set up such an organisation have shown that there is a dearth of suitable technicians, and it is clear that in looking toward the future we must provide our own pool of trained juniors for all classes of technical work. To this end we approached the Local Ministry of Labour whose Education Officer told all the Manchester and District Grammar Schools of the opportunities afforded by our training scheme. This resulted in a substantial number of suitable applicants being interviewed and allocated to various works in the group. It is our intention that each apprentice or pupil should have the widest training, and where possible an interchange between works in the group will be arranged.

Far too little attention has been paid to retort maintenance. With present high capital costs of any new plant, it is more necessary than ever that we should maintain carefully and efficiently the plant we have at our disposal.

Entrants to the Industry

Public opinion on the conditions and prospects for new entrants to the gas industry was reflected during our recent attempts to introduce apprentice gas engineers to the industry as a career. One student turned a job down because of the impression gained by his parent of the poor prospects and bad working conditions. The parent was interviewed, the future prospects were explained, a works was inspected, and a complete reversal of this attitude resulted. If we are to progress and make the job attractive to the type we require, we must present the right conditions.

With integration and the tendency for larger manufacturing stations the larger number of employees must offer the possibility of providing those welfare amenities which have in the past only been available in the largest progressive industrial concerns. Such conditions should lead to an improvement in our labour relations and provide the incentive for the right type of men to enter the industry.

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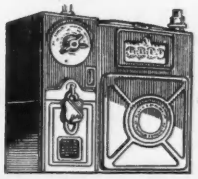

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TRADE NEWS

Deloro Stellite Ltd.

The use of 'Stellite' for maintenance at gasworks is rapidly increasing because it is proof against the destructive effect of heat, acids, fumes and abrasion. 'Stellite' is a chromium-cobalt-tungsten alloy supplied in the form of rod for application by either oxy-acetylene or arc welding. Its value lies in the fact that softening by heat or attack by acid are not aided by iron content.

Gas producer pokers or levellers have to withstand severe abrasive wear, heat, and fumes. Fairly rapid wear usually takes place if the conditions are severe as soon as the plant operates, but a simple addition of the alloy on the existing component increases life to two years and over. Again, the life of buckets, grabs, screw conveyors, dredgers, elevator bucket lips, skidder bars, links, and riders can be increased so that efficiency can be maintained and

Coke pusher rack pinions being built up with arc welding rod at the works of A. Kelly, London, W.C.1.

overhaul postponed for consequently longer periods.

Another application, again for high load conditions, is to the Power Gas producer grate. Hardfacing of the corners effectively prevents wear and prolongs life. One test run showed that no wear had taken place when it was examined 12 months after application. The actual continuous running time was 24 hours per day for six months.

The crushing rings of some of Humphreys & Glasgow water gas generators have had their life extended by applications of 'Stellite.' These crushing rings are subjected to corrosion and abrasion due to the action of the rotary grate. The amount of wear necessarily depends upon the operating conditions as regards temperature and formation of clinker or otherwise, as well as upon the nature of the ash in the fuel. While the majority of the rings give satisfactory service increased life is obtained by the use of 'Stellite.' In one instance, there was negligible wear after two years.

On the pump side 'Stellite' is extensively used for sleeves and shafts such as in cold ash pumps, and valves for acid, benzole, steam, and hydraulic services are being faced with the alloy.

On the coke side full exploration of the possibilities of cobalt-base hardfacing has not been carried out, but there are many coke pusher shoes already hardfaced and in continuous operation. The life of these has been extended to years because of the low rate of wear. Figures taken recently show that the wear is less than $\frac{1}{16}$ in. over a period of seven months. Other applications are coke pusher rack pinions, clinker bars, crushing rolls, ash ploughs, and coke prickers.

It is claimed that main reasons why hardfacing with the cobalt-base alloy 'Stellite' is worthy of consideration are that maintenance can be planned more accurately owing to the increase in life of various components because they are protected against heat, corrosion and wear; efficiency is maintained for correspondingly longer periods and, apart from the saving in maintenance time, the reduction in replacement parts is considerable, especially when in most cases re-building of worn faces is practical and a not too difficult proposition. *Deloro Stellite Ltd., Highlands Road, Shirley, Birmingham.*

British Welding Research

The British Welding Research Association has published an illustrated wall chart of approximately 3 ft. by 2 ft. with 37 half-tone illustrations indicating common faults that can occur in the metal arc welding of steel. The chart is printed in two colours and is mounted on a very strong backing board suitable for direct mounting to the walls of welding shops, offices, &c. Copies of this wall chart entitled, 'Faults in Arc Welds', are obtainable from the Publications Department, British Welding Research Association, 29, Park Crescent, London, W.1, price 7s. 6d. each, post free.

Gibbons Bros.

A beautifully produced and profusely illustrated brochure has recently come to our offices. It shows a selection of the principal plants installed since 1945 and gives an idea of the wide scope of manufacture. In the words of the Chairman in the book's foreword: 'We are rather proud of the fact that despite the well-known shortages of certain materials and of skilled labour we have been able to carry out more work of a more varied type than in any preceding five years of our history.'—*Gibbons Bros., Ltd., Dudley, Worcs.*

Hurseal Ltd.

To enable the householder to assess the economic efficiency of home heating arrangements a new room thermometer has been introduced.

The thermometer has an easily read pointer and dial, with the comfort zone —between 55° and 65°—clearly marked in red. The movement is accurate and reliable, the finish excellent and it is obtainable in several attractive colours. *Hurseal Ltd., 229, Regent St., London, W.1.*

Trade Publications

We express our thanks to the following:—

W. E Bray & Co, Ltd., for their recently published leaflet dealing with the 'Braydozer,' which is applicable to all crawler tractors.

British Jeffrey-Diamond, Ltd., for catalogue No. 1449C, which supersedes previous issues and covers rigid hammer crushers. Copies are available on request.

The Expanded Metal Co, Ltd., for their products list, well illustrated and coloured, with an extensive coverage.

Keith Blackman, Ltd., for 'Tornado' publication No. 9 dealing with man cooling fans and industrial air circulators, type M.

Falk Stadelmann & Co., Ltd., for their catalogue No. 791, which is a complete record of their range of lighting, heating and cooking specialities.

Pollution Gauges

A British standard for atmosphere pollution deposit gauges (B.S.1747:1951) has been prepared, on the suggestion of interested authorities, in the hope of aiding the work of combating atmospheric pollution.

The standard covers the construction, installation, and use of the deposit gauge for the collection and measurement of atmospheric impurities that are deposited by their own weight or with the assistance of rain. As a secondary function the gauge provides a measure of the monthly rainfall. The apparatus and methods of analysis described are in accordance with recommendations based on the considerable experience of the Department of Scientific and Industrial Research and of local authorities.

Copies of the standard may be obtained from the British Standards Institution, Sales Department, 24, Victoria Street, London, S.W.1, price 2s. 6d. post free.

Five-Day Week.—With the introduction of the five-day week at their head office as from last Monday (October 22), Keith Blackman, Ltd., announce that staff will no longer be working on Saturdays. The offices will be open from 8.45 a.m. to 5.30 p.m. every day from Monday to Thursday, and from 8.45 a.m. to 6 p.m. on Fridays.

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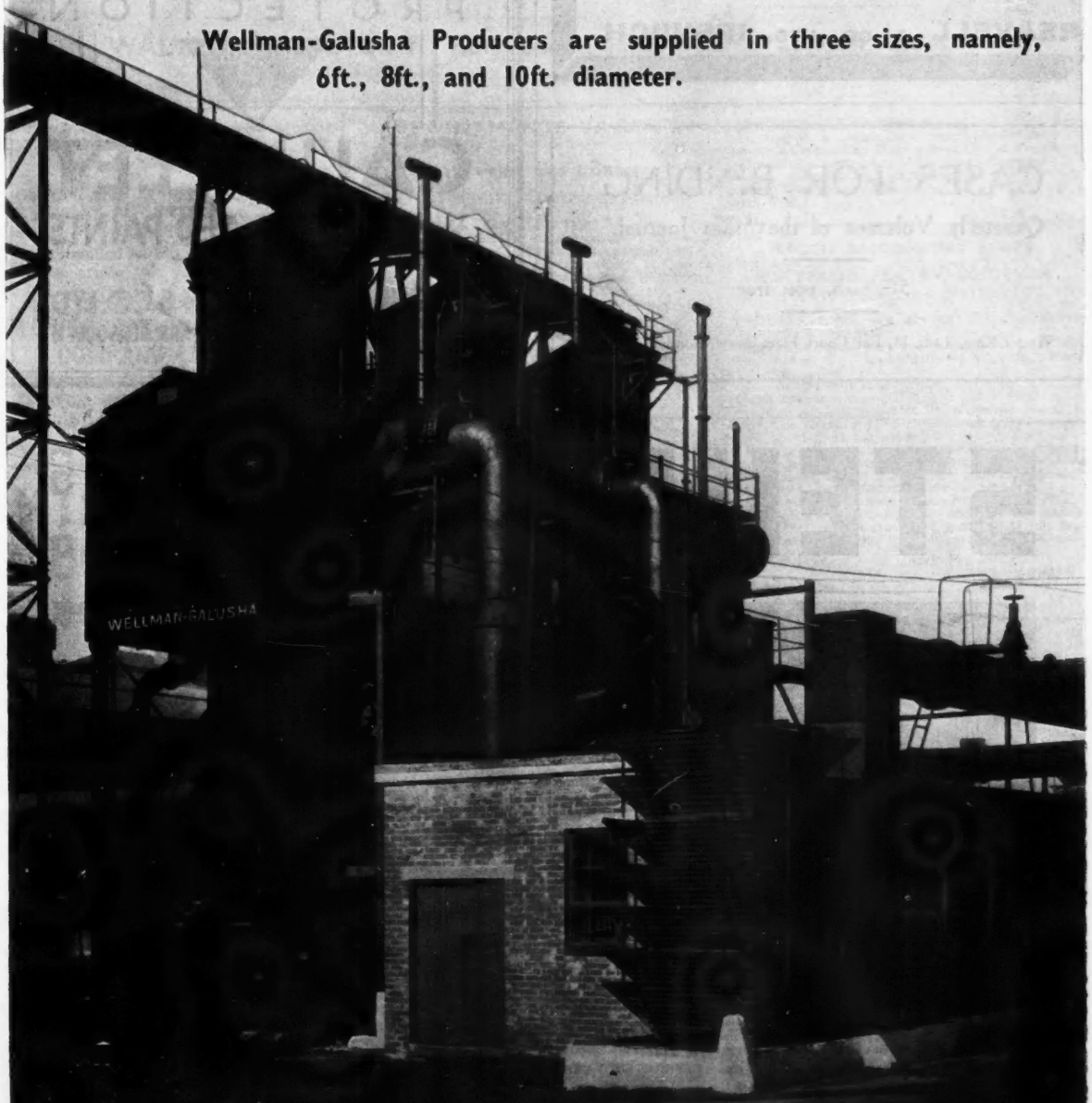
A battery of three 8ft. diameter Wellman-Galusha Gas Producers, equipped with fuel storage bins and Gas Cleaning Plant, for the efficient gasification of anthracite, coke or coke breeze.

Wellman-Galusha Producers are supplied in three sizes, namely, 6ft., 8ft., and 10ft. diameter.



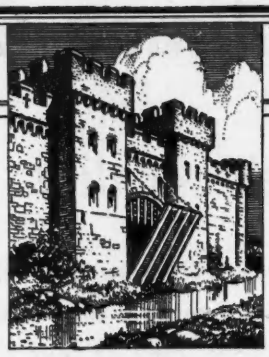
THE WELLMAN SMITH OWEN ENGINEERING CORPN. LTD.
PARNELL HOUSE, WILTON ROAD, LONDON, S.W.1 WORKS: DARLASTON, SOUTH STAFFS.

INDUSTRIAL RUBBER HOSE

CENTRAL MANFG., & TRADING CO. (DUDLEY) LTD.
OLD HILL **STAFFS.**
PHONE: CRADLEY HEATH 69181 (5 LINES).
"EVERYTHING IN ASBESTOS."

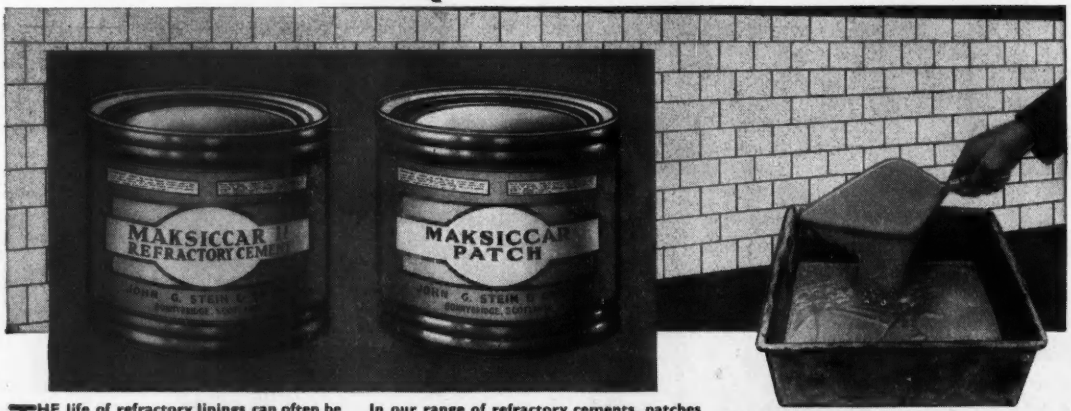
COMPRESSORS & EXHAUSTERS FOR AIR AND GAS.
See our Advertisement Next Week.
REAVELL & CO. LTD. IPSWICH.

CASES FOR BINDING
Quarterly Volumes of the "Gas Journal."
5/- each, post free
Walter King, Ltd., 11, Bolt Court, Fleet Street, London, E.C.4.



PROTECTION
GAUNTLET
GAUNTLET
WEATHER TESTED PAINTS
ARCHD H. HAMILTON & CO. LTD
27-37 BARDOWIE STREET POSSILPARK GLASGOW. N

STEIN *Refractory* **CEMENTS AND PATCHES**



THE life of refractory linings can often be improved by the right choice of jointing cement. The best cement to use will depend on the specific conditions in the furnace concerned. Similarly in the use of refractory patches to repair damaged brickwork, or to replace special shapes in certain conditions, much better results will be obtained from the material with properly balanced properties.

In our range of refractory cements, patches and castable refractories, users will find a selection of high quality materials which can be relied on for a uniform high standard of quality. Full particulars are given in our **REFRACTORY CEMENTS AND PATCHES** pamphlet and we are always glad to give advice on the best application of our products.

CEMENTS
MAKSICCAR FIRE CEMENT
MAKSICCAR II DRY REFRACTORY CEMENT
STEIN SILLIMANITE
NETTLE REFRACTORY CEMENT
PATCHES
MAKSICCAR PATCH
STEIN SILLIMANITE PATCH
STEIN 73 PATCH
STEIN CHROME PATCH
CASTABLE REFRACTORIES
STEIN REFRACTORY CONCRETE
STEIN BAFFLE MIX

JOHN G. STEIN & CO. LTD., BONNYBRIDGE, SCOTLAND

PUBLISHERS' NOTICE

The "Gas Journal" is published every Wednesday, price 1/3d.; by post 1/5d.

Subscription Rates : Home and Empire :- 52 - per annum ; Foreign :- 60 - per annum. (Both payable in advance.) A copy of the "Gas Journal" Calendar & Directory is presented each year to continuous subscribers.

Classified Advertisements : All small classified advertisements are charged at 1/9 per line (approx. 7 words) - minimum charge 10/6. A Box Number address occupies 2 lines, and a further 6d. is charged towards cost of postage on replies. Copy must be received by first post on Monday to ensure insertion in that week's Journal.

Displayed Advertisements : Rates obtainable on application to the Business Manager. Change of copy for displayed spaces must be received 14 days prior to publication if proofs are required. Type area of inside pages 10" deep x 7" wide ; block screen 120.

BUSINESS MANAGER : S. T. CULLEN

MIDLANDS OFFICE : 10, Union Street, Birmingham.

NORTHERN MANAGER : W. Q. Foster, 33, St. Helens Road, Harrogate. 'Phone : Harrogate 84291.

WALTER KING, LTD., 11, Bolt Court, Fleet Street, London, E.C.4.

Telephone : CENtral 2236-7. Telegrams : Gasking, Fleet, London.

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DUTCH AND DANISH BOG ORE SPECIALLY ACTIVATED OXIDE OF IRON

Oxide supplied on loan or sale outright. Highest prices paid for Spent Oxide.

Send your enquiries to

GAS PURIFICATION & CHEMICAL COMPANY LIMITED

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PALMERSTON HOUSE, OLD BROAD STREET, LONDON, E.C.2.

Telegrams: "Purification, Stock, London." Telephone: London Wall 5077

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THE COOKER CLEANER

Tins for Sale to Consumers. In Bulk for Works Use

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BALE & CHURCH, LTD.

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Telephone: CRAWLEY 1212-3. Telegrams: "Balefire, Crawley."

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KINGS PATENT AGENCY, LTD.

(Director, B. T. King, A.I.M.E., Patent Agent). Advice, Handbook, and Consultations free. 146a, Queen Victoria Street, London, E.C.4. 'Phone : City 6161.

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WHERE'S YOUR

NU-SWIFT?

The World's Fastest Fire Extinguishers — for every Fire Risk

Pressure-operated by sealed CO_2 Charges

NU-SWIFT LTD. • ELLAND • YORKS

In Every Ship of the Royal Navy

APPOINTMENTS VACANT

SOUTHERN GAS BOARD

ISLE OF WIGHT GAS UNDERTAKING.

FIRST-CLASS GAS FITTER required for Cowes area. Housing accommodation available at reasonable rent. J.I.C., Schedule rates of pay. Apply with references stating age, experience, etc., to General Manager, Isle of Wight Gas Undertaking, Rosemount, Bellevue Road, Ryde, I. W.

SOUTHERN GAS BOARD

CIVIL DEFENCE CO-ORDINATING OFFICER.

THE SOUTHERN GAS BOARD invite applications for the above appointment.

Candidates should have had experience of the organisation of Civil Defence measures in Industrial or Commercial establishments, preferably in the Gas or similar Industries.

The duties will include the supervision of training schemes and the co-ordination of Civil Defence measures and precautions (the operational responsibility for Civil Defence will rest with the Divisional General Manager of each of the four Divisions of the Board).

The post will be graded A.P.T. XII (Provincial 'A') (£695 to £820 per annum) and the commencing salary will depend upon qualifications and experience.

Applications, which should give details of age, education, qualifications, experience and the names and addresses of two referees, should reach the undersigned not later than November 6, 1951.

T. E. D. MASON,
Secretary.

164, Above Bar,
Southampton.

CITY OF SHEFFIELD EDUCATION COMMITTEE

COLLEGE OF COMMERCE AND TECHNOLOGY.

Principal: G. LAWTON, B.Sc., Ph.D., F.R.I.C., A.M.I.Chem.E.

DEPARTMENT OF BUILDING.

APPLICATIONS are invited for the post of full-time TEACHER OF GASFITTING. Applicants should hold the City and Guilds Full Technological Certificate in Gas fitting and the possession of a Higher National Certificate in Gas Engineering would be an advantage.

The successful applicant will be expected to teach students to the requirements of the Final Grade of the City and Guilds Examinations and also the main subject of a Gas Engineering (Supply) Course for Associate Membership of the Institution of Gas Engineers.

Salary in accordance with the 1951 Burnham Further Education Scale for Assistants Grade B (£450 × £25 to £725 per annum). In computing the commencing salary, additions to the minimum up to 12 increments for approved industrial experience may be allowed.

Application forms may be obtained from the undersigned on the receipt of a stamped addressed foolscap envelope and should be returned within two weeks of the appearance of this advertisement.

STANLEY MOFFETT,
Director of Education.

Education Office,
Sheffield, 1.

OPERATING ENGINEERS required, preferably young men. Must have experience of operating Gasworks Carbonising Plant or Coke Ovens. Permanent job for suitable men. Apply in writing giving particulars of age, education and experience to the Personnel Officer, The Woodall-Duckham Co., 63/77 Brompton Road, S.W.3.

SOUTH EASTERN GAS BOARD

GAS ENGINEERING DRAUGHTSMAN.
KENT SUBURBAN DIVISION.

APPLICATIONS are invited for the above- mentioned position.

Applicants should have had previous Drawing Office experience in the Gas Industry or with Gas Works Plant Contractors.

The commencing salary will be according to qualifications and experience and will be within Grade VI of the National Salary Scales (Metropolitan Area) in respect of Administrative Professional and Technical Staffs (£485-£565 per annum).

Applications from candidates without the required experience will be considered with a view to their being trained, but in this case the commencing salary will be in a lower grade than that set out above.

Applications in writing (quoting reference V.10/195) giving age, present occupation, experience and qualifications, etc., should reach the undersigned not later than fourteen days after the publication of this notice.

R. J. MCCRAE,
Personnel Manager.

Katharine Street,
Croydon.

WEST MIDLANDS GAS BOARD

WALSALL & DISTRICT DIVISION.
SMETHWICK GROUP OF UNDERTAKINGS.
(Comprising Smethwick, Oldbury and West Bromwich Districts).

APPLICATIONS for the following posts are invited from suitably qualified persons, preferably possessing a knowledge of surveying and the planning and laying of steel and cast iron gas mains:—

(i) DISTRIBUTION DRAUGHTSMAN.
The salary for the post will be not less than £500 per annum rising by annual increments to a maximum of £580 per annum, in accordance with Grade VII of the salary scales of the National Joint Council for Gas Staffs.

(ii) DISTRIBUTION DRAUGHTSMAN.
The salary for the post will be not less than £425 per annum on commencement rising by annual increments to a maximum of £505 per annum, in accordance with Grade V of the salary scales of the National Joint Council for Gas Staffs.

The successful candidates may be required to pass a medical examination and will be subject to such superannuation regulations as the Board may in due course adopt.

Applications, stating full particulars of age, experience and technical qualifications, and giving the names of two referees should be addressed to Mr. E. Hardiker, Divisional Manager, West Midlands Gas Board, Walsall and District Division, Walsall Factory Estate, Tame Bridge, West Bromwich Road, Walsall, Staffs, to reach him not later than fourteen days after the appearance of this advertisement. Applicants are requested to quote ref. T.P.3, when replying to this advertisement.

F. H. CURETON,
Secretary.

(*Classified advertisements continued on Supplement* 4)

APPOINTMENTS VACANT (*ctd.*)

FIRST CLASS PRACTICAL FOREMAN ERECTOR/WELDER wanted for interesting specialised work. Must be willing to travel in control of small gangs of Erectors and Welders and must have clean driving licence.

Apply in writing, giving age and experience, to: Managing Director, No. 9975, *Gas Journal*, 11, Bolt Court, Fleet Street, London, E.C.4.

JONES GAS PROCESS COMPANY, LTD.

APPLICATIONS are invited for the position of DRAUGHTSMAN in connection with the design and detailing of Oil Gas Plant.

Experience in structural design, platework, refractory brickwork construction and general engineering an advantage.

Salary £550-£600 per annum, according to qualifications.

Applications in writing, giving particulars of age, qualifications and experience to be addressed to: Jones Gas Process Company, Limited, The Gas Works, Cheltenham.

EASTERN GAS BOARD

CAMBRIDGE DIVISION.

PETERBOROUGH GROUP.

APPLICATIONS are invited for the position of GROUP TECHNICAL ASSISTANT.

Candidates should possess the Higher Grade Certificate of Supply, Institution of Gas Engineers, and should have had practical experience of Distribution. Works experience and the possession of an Ordinary Grade Certificate (Manufacture) will be an advantage.

The salary for this position will be in accordance with A.P.T. Grade VII Provincial 'A' of the National Salary Scales for the Gas Industry, and the commencing salary will be in accordance with the qualification of the person appointed.

The successful applicant may be required to pass a medical examination and to subscribe to such superannuation scheme as the Board may adopt.

Applications stating age, present position and details of training, qualifications and experience, together with the names of two referees should reach the undersigned not later than twelve days after the publication of this advertisement.

J. HUNTER-RIOCH,
General Manager.

Eastern Gas Board
(Cambridge Division),
52, Sidney Street,
Cambridge.
October 17, 1951.

EAST MIDLANDS GAS BOARD

NOTTS. & DERBY DIVISION.

DERBY SUB-DIVISION.

DRAUGHTSMAN.

APPLICATIONS are invited from DRAUGHTSMEN for a vacancy at the Derby Undertaking. Candidates should hold the Higher National Certificate in Mechanical or Civil Engineering or possess the Higher Grade Certificate in Gas Engineering (Manufacture) of the Institution of Gas Engineers, and have experience in mechanical or constructional engineering.

The salary offered for the post will be in accordance with Administrative, Professional and Technical Grades of the National Salary Scales, namely, A.P.T. Grade VII (£500-£580). The successful applicant will be required to pass a medical examination and the appointment will be subject to such Superannuation Scheme as may be adopted by the Board.

Applications, giving full particulars of age, qualifications, experience, accompanied by *copies* of two recent Testimonials, should reach the undersigned not later than October 31, 1951.

A. FACER,
Manager,
Derby Sub-Division.

NORTH THAMES GAS BOARD

THE FOLLOWING Drawing Office Staff are required in the CHIEF ENGINEER'S DEPARTMENT.

1. JUNIOR DRAUGHTSMEN (3) at BECKTON, E.6; SLOUGH, BUCKS.; and LEA BRIDGE, E.10. Applicants should preferably have had some experience in the maintenance of gas plant and be conversant with the design of steel structures and lay-out of buildings. Starting salary within the range £295 per annum to £535 per annum, according to age, qualifications and experience.

2. DRAUGHTSMEN (2) at WESTMINSTER.
   (*a*) Experienced in the design, layout and detailing of mechanical handling plant.
   (*b*) Experienced in the design, layout and detailing of any of the following:—Coal Carbonising Plant, Coke Oven Plant, By-Products Plant, Pipe Layouts or Steel Framed Structures.

Applicants should be about 30 years of age. Starting salary within the range £570 per annum to £650 per annum, according to age, qualifications and experience.

All the above appointments are of a permanent nature and pension arrangements will be discussed at interviews. Applications, stating age and full particulars of training and experience, should be sent to the Staff Controller, North Thames Gas Board, 30, Kensington Church St., W. 8, quoting reference number 79.

CONTRACTS OPEN

WALES GAS BOARD

WREXHAM UNDERTAKING.

TENDERS are invited for the various works in connection with the construction of all or any of the following HIGH PRESSURE STEEL GAS MAINS with WELDED JOINTS.

Approx. 26,000 yards 14 in. diameter
Approx. 6,200 ,, 8 in. ,,
Approx. 7,200 ,, 6 in. ,,

The whole is in Denbighshire and Flintshire and is divided into six sections.

Specifications and plans may be obtained from the undersigned on payment of a deposit of two guineas which will be refunded on receipt of a bona fide tender.

Tenders endorsed "Bulk Supply Mains North" should be received not later than November 10, 1951.

J. F. LLOYD,
Engineer and Manager.

Wales Gas Board,
Wrexham Undertaking,
Rivulet Road,
Wrexham.

REPAIRS

FOR PUBLIC LIGHTING
CLOCK CONTROLLER REPAIRS.
(A.I.D. approved)
BRIGHT, SON & CO.
(CLERKENWELL) LTD.
SUTTON WORKS, ARLINGTON AVENUE, ISLINGTON, N.1
Canonbury 2049 Brifulson, Nordo, London.

LEEDS X L PLASTIC FIRE CEMENT
FOR
BUILDING & REPAIRING
FIREBRICK WORK ETC
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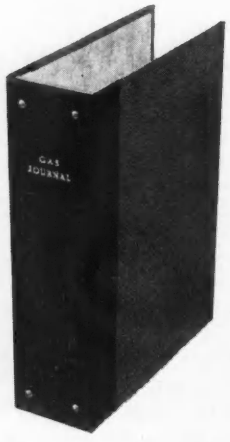
Bind your JOURNAL each week

No loose copies to be mislaid

We offer Journal readers a simple method of temporarily binding their copies as received week by week. No time lost searching for a particular issue; Journals removed and replaced in a few seconds. Designed to hold 13 issues, and whether completely or only partially filled the book effect is always maintained.

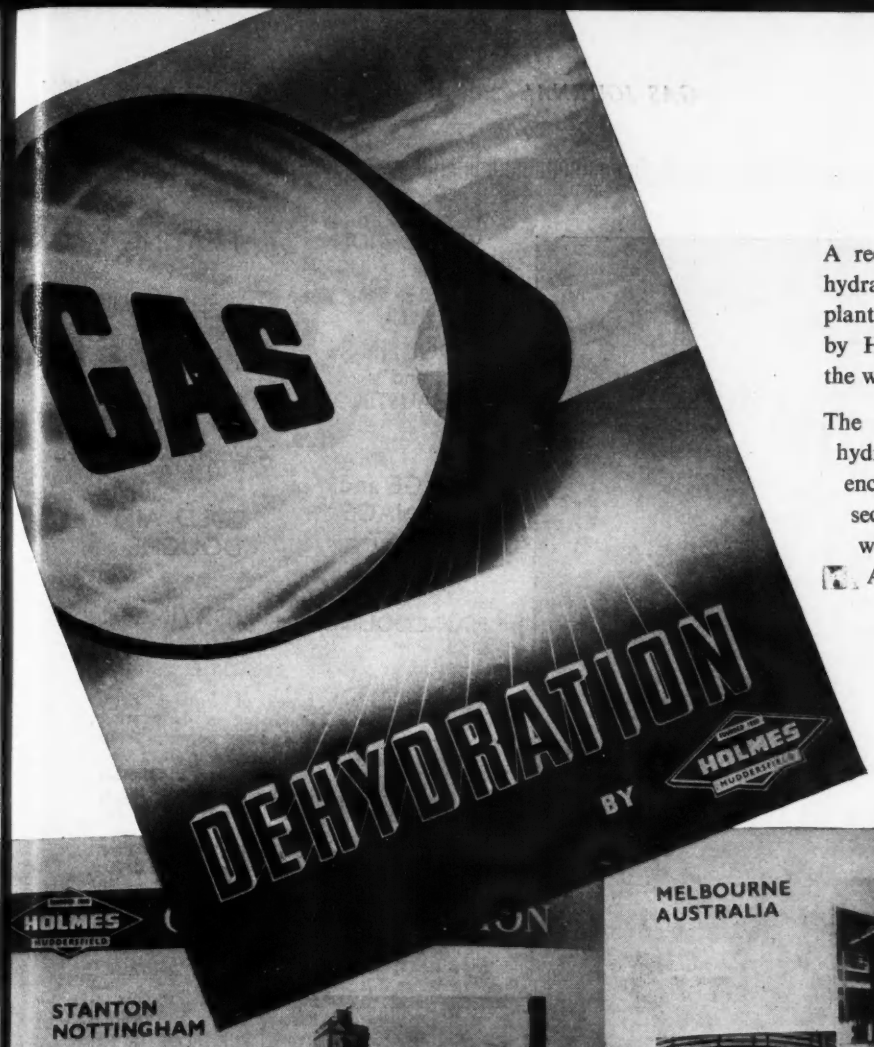


Gold lettered on the spine complete with instruction sheet.

Price **12/6** each plus 9d. postage.

Obtainable from:

WALTER KING, Ltd., 11, Bolt Court, Fleet St., London, E.C.4

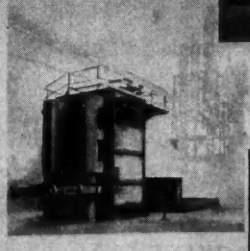


A recent publication on Gas Dehydration illustrates some of the plants designed and manufactured by Holmes, operating throughout the world.

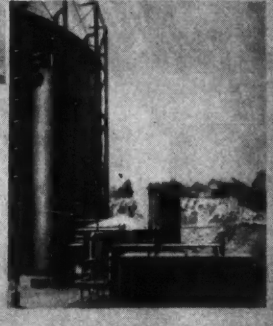
The wide adoption of Gas Dehydration by the Industry has encouraged the printing of this second book (Brochure No. 38) which is available to Gas Authorities on Request.

HOLMES HUDDERSFIELD

STANTON NOTTINGHAM

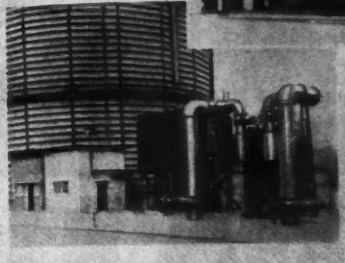


LEA BRIDGE LONDON



SCRANTON AMERICA

MELBOURNE AUSTRALIA



ROTHERHAM YORKSHIRE

densation to occur in the underground pipes, while at other seasons there may be the reverse tendency, water being absorbed by the gas from the deposits which have occurred when the ground was relatively colder. These are the conditions under which dust may be produced, by the drying out of corrosion products, and surprisingly moderate gas velocities are sufficient to set up movement of the dust. Generally speaking, the gas velocities in the street mains are higher than those in the service pipes which are taken off, so that there is a tendency for dust which is on the move to be partly arrested at each individual service connection. It will also be seen that water vapour which has travelled from the works, or has been picked up en route, may again be condensed in the household pipes and fittings, and in this manner the gas meter itself may be found to suffer considerably. Whatever may be the excellence of construction of dry gas meters, and they have a high reputation for standing up to adverse conditions, the total cost of meter maintenance can be materially reduced by preventing such water condensation.

THROUGHOUT THE WORLD

W. C. HOLMES *& Co. Ltd.*

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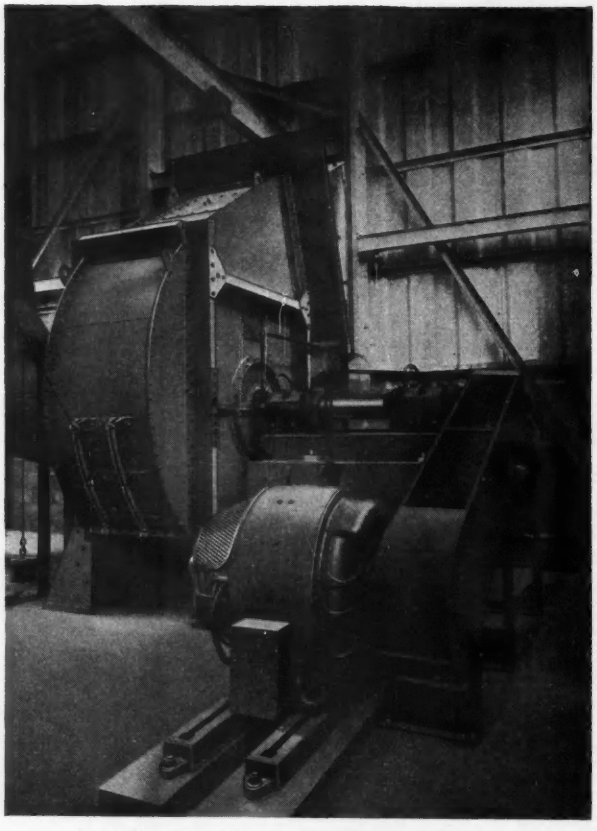


A Keith Blackman Induced Draught Fan in Operation.

VENTILATION — HEATING

GAS BOOSTING and EXHAUSTING — MECHANICAL DRAUGHT

FURNACE RE-CIRCULATING

FORGE and FURNACE BLAST — COLD AIR DOUCHE

MAN-COOLING — DRYING

WE make all types of Fans—"High Efficiency" for boosting or exhausting gas up to 3 lbs. p.s.i. and for volumes from 5,000 to 1,500,000 cfph; Cast Iron and Steel-plate "Pressure" fans for up to 2 lbs. p.s.i. air blast to furnaces, forges, water gas plants, burner equipment, etc; "Turbo" fans for applications requiring up to 6 lbs. p.s.i.; "Centrifugal" fans for draught on boiler fires to ensure economical steam production, or for cold air douche to workers in retort houses, etc.; "Centrifugal" or "Axial" fans for supplying ventilating air through ductwork; "Propeller" fans for moving air in volume for ventilating; "Propeller" fans on portable structures for cooling workers at furnace fronts; and "Tenaxe" fans for re-circulating high temperature gases and air in various types of heat treatment furnaces.

"KEITH-BLACKMAN"

FANS *for every purpose*

BOOKLET 20/7
Pictorial survey of K.B. products
FREE ON REQUEST

When you need Fans for moving air or gas give us an opportunity of making practical suggestions.

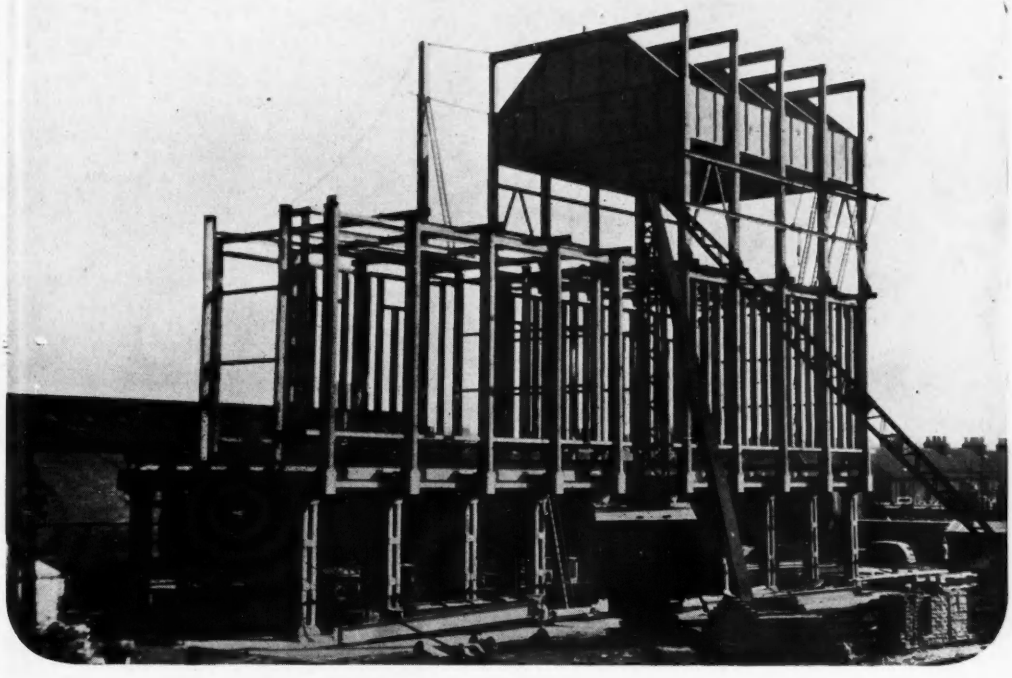
FAN MANUFACTURERS' ASSOCIATION LIMITED

KEITH BLACKMAN LTD
MILL MEAD ROAD, TOTTENHAM, LONDON, N.17.
TN : TOTtenham 4522. TA : "Keithblac Norphone London."

MANCHESTER, 4 : 26 Corporation Street. Tel. No. : Blackfriars 4228. BIRMINGHAM, 2 : 75 New Street. Tel. No. : Midland 0317-8.
LEEDS, 1 : 40/41 Royal Exchange Chambers. TN: Leeds 27286. NEWCASTLE-ON-TYNE 1 : 21 Mosley St. TN: Newcastle 22284.
SCOTLAND: 90 Mitchell Street, Glasgow, C1. TN: Central 7973. IRELAND: 7 Brunswick St. Belfast. TN: Belfast 21114.
SOUTH WALES : 127 Stanwell Road, Penarth, nr. Cardiff. TN : Penarth 249.

Printed by STRAKER BROTHERS LTD., E.C.2, for WALTER KING, LIMITED, 11, BOLT COURT, FLEET STREET, LONDON, E.C.4. Wednesday, October 24, 1951

Work in progress



STOCKTON-on-TEES

Retort Benches under construction for the installation of 64, 50 inch Glover-West Vertical Retorts.

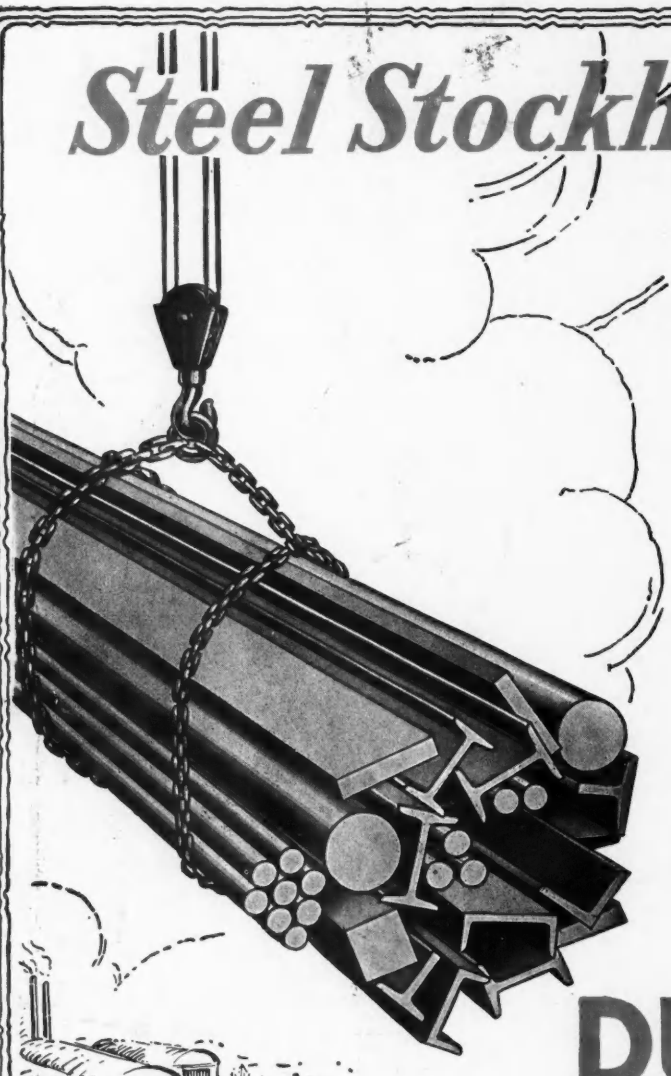
West's Gas IMPROVEMENT CO., LTD.

MILES PLATTING, MANCHESTER, 10

Telephone: COLlyhurst 2961–5. Telegrams: Stoker, Manchester.

London Office: COLUMBIA HOUSE, ALDWYCH, W.C.2. Telephone: HOLborn 4108–9. Telegrams: Wesgasco, Estrand.

Steel Stockholders



JOISTS
CHANNELS
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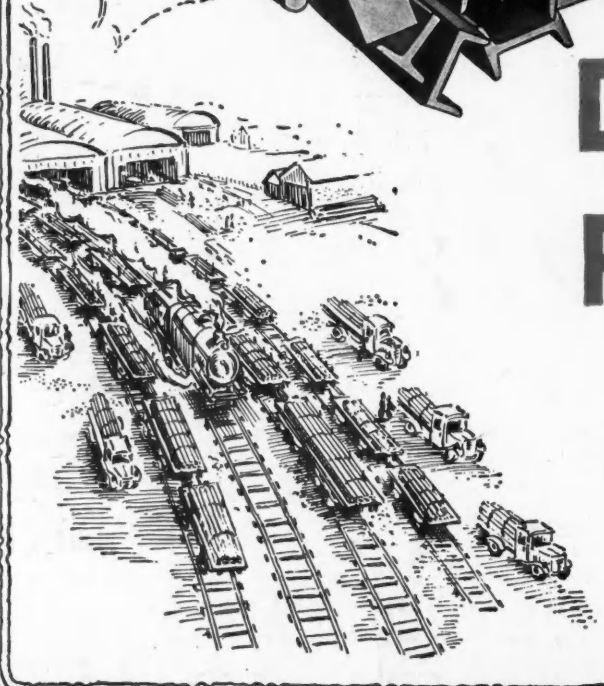
TOOLS ETC



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RANKEN
LTD
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TELEPHONE LEEDS 27301
(20 LINES AT YOUR SERVICE)